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A
TREATISE

ON THE

MATERIA MEDICA,

INTENDED AS

A SEQUEL

TO THE

Pharmacopœia of the United States:

BEING

AN ACCOUNT

OF THE

ORIGIN, QUALITIES AND MEDICAL USES OF THE ARTICLES AND
COMPOUNDS, WHICH CONSTITUTE THAT WORK, WITH
THEIR MODES OF PRESCRIPTION AND
ADMINISTRATION.

BY JACOB BIGELOW, M. D.

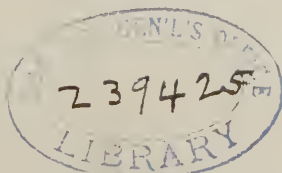
AUTHOR OF THE AMERICAN MEDICAL BOTANY, AND PROFESSOR OF
MATERIA MEDICA IN HARVARD UNIVERSITY.

BOSTON:

PUBLISHED BY CHARLES EWER, NO. 51, CORNHILL.

.....

1822.



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1822

DISTRICT OF MASSACHUSETTS, TO WIT:

District Clerk's Office.

BE it remembered, that on the twenty-third day of September, A. D. 1822, in the forty-seventh year of the Independence of the United States of America, Charles Ewer of the said District has deposited in this office the title of a book, the right whereof he claims as proprietor in the words following, *to wit* :

“A Treatise on the Materia Medica, intended as a Sequel to the Pharmacopoeia of the United States : Being an Account of the Origin, Qualities and medical Uses of the Articles and Compounds, which constitute that Work, with their Modes of Prescription and Administration. By Jacob Bigelow, M. D. Author of the American Medical Botany, and Professor of Materia Medica in Harvard University.”

In conformity to the act of the Congress of the United States, entitled “An act for the encouragement of learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies, during the times therein mentioned :” and also to an act entitled, “An act supplementary to an act, entitled, An act for the encouragement of learning, by securing the copies of maps, charts and books to the authors and proprietors of such copies during the times therein mentioned ; and extending the benefits thereof to the arts of designing, engraving and etching historical and other prints.”

JNO. W. DAVIS,

Clerk of the District of Massachusetts.

.....
Phelps and Farnham,
Printers.
.....

TO
JAMES JACKSON, M. D.

PROFESSOR OF THE THEORY AND PRACTICE OF PHYSIC IN
HARVARD UNIVERSITY.

DEAR SIR,

IN dedicating to you this medical volume, I am desirous to express the high respect which, in common with the rest of our profession, I entertain for your character, talents and erudition; and the grateful sense, with which I recollect your long-continued friendship.

Very sincerely yours,

J. B.

ERRATA.

Page 109, line 2, *for* ten *read* forty—and line 3 *for* fifteen *read* fifty.
Page 186, line 5 from bottom, *for* except to form, *read* See.

PREFACE.

THE publication of the American Pharmacopœia may be regarded as an event highly favourable to the interests of medicine in the United States. What experience has abundantly proved, in regard to similar publications in other countries, is beginning to be realized in this. The adoption of a common language in an important department of medical science, and the limitation of names, previously indefinite, to specific and determinate objects, confer a security on the practice of medicine, which must be prized by all, who have at heart the good of the profession and of the community.

A pharmacopœia, however, is in its nature circumscribed and technical. Its office extends no further than to indicate, definitively, the articles to be employed in medicine, and the preparations to be formed from them. It leaves an interesting field to be occupied by the description of those articles, the examination of the sources from which they are derived, the properties by which they are known, the objects which they fulfil in practice, and the manner in which they are to be applied. Believing that

this field might be entered on with some prospect of usefulness, and that a work embracing these topics is rendered in a manner necessary, both by the peculiarities of the Pharmacopœia and by the imperfect apprehension, which has occasionally prevailed in regard to some of its contents; I have been induced to prepare and submit to the public the present supplementary volume. I have styled it a treatise on the *Materia Medica*, because it was found necessary to embrace within its compass some account of whatever is usually found in books of a similar denomination.

The *Materia Medica*, like other branches of natural science, undergoes certain changes, from time to time, sufficient in importance to render new treatises continually necessary. These changes take place partly in the nature of medicines themselves, and partly in their application to disease. The latter, indeed, constitutes no small part of the progress of medical science in its largest sense. There are, besides, in every country, peculiarities in the sources from which medicines are obtained, the actual state in which they exist, and the mode in which they are applied to use. These circumstances give to new and local works an adventitious interest over that possessed by foreign ones, even of greater merit.

In the present publication, I have considered the subjects of the American Pharmacopœia with reference to their *origin, qualities, medical uses, and forms of exhibition*. And in those articles, on which it was thought necessary to dilate most largely, these subjects have been presented under distinct heads.

The ORIGIN of medicines ought so far to be kept in view, that the profession may always know what changes are taking place in the sources, from which substances are derived, and what influence such changes may exert on the character of any part of the *Materia Medica*. Not only does chemistry introduce continual changes in the manufacture of artificial medicines; but, in natural substances, agriculture and commerce may at all times produce such revolutions, as entirely to shift our sources of supply, and materially to influence the character of our drugs. The spirit of commercial profit, to which we are indebted for our foreign articles, naturally seeks for them where they can be obtained at the cheapest rate. Articles of a new or undecided character will often have a commercial preference, because they bear an inferior price. And there is perhaps no branch of commerce, in which names are substituted for realities with more success than in the commerce of drugs. We find that the present sources, and sometimes the character, of very important medicines are essentially different from what they are represented in the dispensatories and similar works written twenty or thirty years ago; yet the names and descriptions of such dispensatories are still applied to them. For example, we have few druggists' stores, in which the Socotrine aloes may not *nominally* be obtained; yet it is believed that very little of the aloes now consumed in the United States ever comes from the island of Socotora. Alexandrian senna is still imported in small quantities; but in common use with us, it is nearly superseded by the senna of the East Indies. These changes are of no importance,

so long as the article substituted is equal in activity to that of which it takes the place. But we have other changes and substitutions, which cannot be viewed as unimportant in their bearings upon medical practice. The genuine African Columbo has, for some years past, been nearly excluded from our shops by an article brought in large quantities from New Orleans, possessing about half the bitterness of real columbo, and apparently the root of *Frasera Walteri*. It is just beginning to be discovered, that the real *Peruvian bark* is a scarce article in the markets of the United States, and that its place is taken by a cheaper bark, of a different character, brought from Carthagera and Carraccas, under the name of *yellow bark*, and which there are reasons for supposing to belong to a species of *Portlandia*. Our importing merchants and druggists inform me, that this Carthagera bark, under the name of yellow Peruvian bark, constitutes, probably, nine-tenths of the reputed *Cinchona* now consumed in the United States, its wholesale price being to that of real bark of Peru as about one to fifteen.

The adulteration of medicines is so easily, if not frequently, effected, that it is not always safe to buy large quantities of any medicinal substance in powder. In Gray's Supplement to the Pharmacopœias may be seen half a dozen recipes for a "*Pulvis corticis Peruviani factitius*," one of which consists of Peruvian bark, mahogany sawdust and oak sawdust, ground together. In the same work is an *artificial Cayenne pepper*, which it is conscientiously recommended to colour with *vermilion*, instead of *red lead*, which last is "*injurious*." In this city the occupant of a

windmill was lately indicted in one of our courts, for grinding gypsum into *cream of tartar*. Dr. Paris mentions a fire in London occasioned by the owner of certain premises being employed in *making* balsam of Copaiba.

The misapplication of names is frequently, even in articles of small consumption, a source of important error. I have seen the *Hyoscyamus niger* offered for sale in this city under the name of *blessed thistle*, a harmless plant, still retained by the dispensatories. From the influence of English names, we very often find *Carthamus* substituted for *Crocus*, *Celastrus scandens* for *Solanum dulcamara*, and the latter for *Atropa belladonna*, &c.

The physical QUALITIES of medicinal substances are important to be known, since they not only enable us to distinguish one from another, but also furnish us useful guides in their preservation and exhibition. Among these, the *solubility* of medicines is a subject, the knowledge of which is continually required in practice. The composition and chemical relations of bodies are also important to be known; though probably these are of less practical consequence in organized, than in unorganized substances. Vegetable chemistry has of late years been cultivated with a zeal, which bids fair to bring us to the conclusion, that there are as many distinct chemical substances, or proximate principles, as there are species of plants, and probably a great many more. Our former classes of vegetable principles are all subdivided; gums and mucilages of different plants are found to be unlike each other; resins have their peculiarities, according to the source from

which they are derived ; volatile oils differ in colour, taste, and congealing points ; extracts, though attempts have been made to class them in groups, are seldom found two alike ; and lastly, almost every active vegetable, which has been examined for the purpose, has furnished forth its particular characteristic alkali. When we reflect, further, that every plant contains not only one, but several chemical constituents ; that these are changing at different periods of its growth, so that what is acid to-day is sugar to-morrow ; that the same rhubarb and cinchona furnish different results under the hands of the most able chemists ; we are compelled to conclude, that, however interesting in a speculative point of view, may be the minute chemistry of vegetables, yet its practical utility is seldom likely to extend beyond those results, which are sufficiently general to be uniform, permanent, and of easy application.

An exception will possibly be found in the *vegetable alkalies*, which have lately been developed in such numbers from different plants. They are undoubtedly an interesting class of bodies, since they appear, as far as experiments have been tried, to contain, in a concentrated form, the physiological and therapeutic energy of the plants in which they reside. Yet it may be justly doubted whether they will ever supersede those plants in practical use, since their formation is tedious and expensive, and a given amount of an alkali, when procured, is seldom equal in activity to the whole substance, which was sacrificed to obtain it.*

* See an interesting paper on the vegetable alkalies in the *Edinburgh Medical and Surgical Journal* for Jan. 1, 1822.

Under the head of *USES* I have considered the physiological influence of medicines, and their application to disease. This highly important subject has been dilated on as far as was deemed consistent with the limits of a work, which must embrace the other topics of the *Materia Medica*.

The mode of *EXHIBITION* of medicines is a point essential to the success of their operation. Not only the dose and frequency of repetition are of primary importance; but the nature of the vehicle, and the circumstances of combination, occasionally exert a material influence on the result of their employment. This subject has been largely discussed by Fordyce, and lately by Dr. Paris. It is generally admitted by practitioners, that similar operative medicines increase the activity of each other, and that a greater effect is obtained from a compound emetic or cathartic, than from a proportionate weight of one of its ingredients. The inconveniences of medicines are likewise often obviated by combination. Thus griping and strangury are prevented by aromatics on the one hand, and demulcents on the other. Where substances of an opposite nature are combined, new actions sometimes grow out of their modified energies, as in the well known sudorific powder of ipecac. and opium. Nevertheless it must be remembered, that useful combinations seldom need embrace more than two or three active articles, and that one of the greatest modern improvements is in the simplification of medical prescriptions.

The chemical relations of bodies should always be considered, not only in the composition of medicines, but in

their simultaneous exhibition. Chemical actions may defeat the intention of the practitioner by rendering his medicines inert; or they may thwart him by developing active powers of an opposite nature from his wishes. Thus, if to a febrile patient be given one day an emetic of tartarized antimony, and on the next a cooling draught of liquid acetate of ammonia; a little soda or salt of tartar may perhaps prevent our emetic from operating, and convert our refrigerant liquid into caustic ammonia. It is on this account necessary, that we should guard against such combinations as are known to neutralize, *in the stomach*, the energies of active medicines, or to produce results of a nature different from our intentions. But, on the other hand, it is not essential that we carry our chemical scruples so far as to consider all substances incompatible, which produce chemical union or disunion, out of the body, and occasion a precipitate or a change of colour. If chemistry be allowed to acquire this ascendancy, it will encumber the practice of medicine with an insufferable load of clogs and difficulties, and surround our commonest medicines with a wall of incompatibles. We should not be able to prescribe the Peruvian bark with chalybeates, lest it should turn them into ink, nor with animal food, lest tannin and gelatin should conspire against us and fill the stomach with leather. It is important to bear in mind that the digestive organs have a material control over the force of chemical agents; that while they promote some combinations, they prevent others; that they separate elements, which have strong mutual attractions, and dissolve bodies, which are in-

soluble in common menstrua. I believe that the incompatible character, given to some of our common medicines in books, has been deduced from chemical experiments more than from medical trials. I have seldom been able to prevent the operation of a common dose of tartarized antimony by giving Cinchona either with, or after it, although I have made various trials with different varieties of bark for this purpose.

In the arrangement of subjects in the present work, I have adopted the alphabetical order as the most convenient for reference, rather than the pharmaceutical division of simples from compounds, or the more common arrangement by classes, adopted in various works on the *Materia Medica*. The alphabetical order enables us to concentrate in one view all that is said on a medicine and its principal preparations.

In regard to the *Pharmacopœia* itself, we may indulge a hope, that after passing through an ordeal certainly not of the most lenient kind, it is at length established on a basis of permanent utility. Its character has been sufficiently discussed in the journals of the day; and the reader is particularly referred to the Reviews of it, which have appeared in the *American Medical Recorder* for July, 1821, and the *Philadelphia Journal of Medical and Physical Sciences* for August, 1821, and a Reply to those Reviews in the *American Medical Recorder* for October, 1821. A more deliberate examination, made since the publications alluded to, has satisfied me that this work merited a more able defence, and that many of the objections, which in the

haste of the moment were passed by without notice, were really futile and ungrounded. It is very creditable to the Convention, who framed this work, that under the disadvantages attending their short period of co-operation, they should have produced a standard of pharmacy so well adapted to the wants of the medical community in our country, and possessing on the whole so few defects. A list of *Corrigenda*, published since the Pharmacopœia, has done justice to the Convention in restoring, agreeably to their designs, some slight portions of the work, which, during preparation for the press, appear to have been erroneously construed or transcribed.

It is unnecessary to repeat the opinions, which I have formerly expressed in the Reply above alluded to, on the general merits of the Pharmacopœia. When we consider that a work of this kind, necessary as it is, can never emanate in this country from any but a representative body of physicians, and must always be compiled under great disadvantages; it is fair to predict, that no future publication of the sort among us, should such be undertaken, will ever be likely to surpass the present in general fitness and accuracy, or be more deserving the support of the wise and disinterested portion of our profession.

Under these circumstances, it is greatly to be regretted, that a spirit of loose and unreflecting criticism should be still indulged in the pages of any work possessing so much authority as to give weight to its strictures among readers, who are not accustomed to examine and appreciate for themselves. I allude here to the last edition of Professor

Coxe's American Dispensatory, in which, while the author so far admits the authority of the Pharmacopœia as to new model his whole book upon its basis, he needlessly digresses from the path of his own subjects, to bestow undeserved censures on the national work. I am not willing to encumber the pages of the present volume by making it a vehicle for medical controversy. But duty on this occasion obliges me to state, that the criticisms on the American Pharmacopœia, contained in the last edition of Professor Coxe's Dispensatory, under the following heads, viz. *Acetum scillæ—Alcohol—Spiritus ætheris sulphurici—Alcohol ammoniatum—Antimonium tartarizatum—Arum Americanum—Aqua calcis—Decoctum scillæ—Dracontium—Ela-terium—Hydrargyri oxidum cinereum—Infusum cinchonæ cum aqua calcis, &c.—Mistura zinci sulphatis—Phytolacca—Pterocarpus—Succinum—Syrupus aurantii corticis—Tinctura cinchonæ composita—Unguentum simplex*;—are all of them *erroneous* and *unfounded*; and this I am perfectly ready to show in any medical journal, in which the friends of that gentleman may require it.

The present work is offered to the public as a humble attempt to extend the usefulness of the Pharmacopœia, by a commentary on the design, character and application to use, of its various contents. It is not to be supposed that an individual can be conversant with the views of all who co-operated in the Pharmacopœia; nor does the present publication possess any claims to the character of an official production. It is no more than a brief statement of my own information and opinions on the subjects of which

it treats. The great number of these subjects, and the limits which I had prescribed to myself at setting out, have rendered it impossible to bestow on all of them the same attention, which the more interesting parts have received. Of the numerous indigenous articles, I have given a condensed account, and must refer for more extended information to my own work, the American Medical Botany, and to a work on the native plants of the Pharmacopœia, which Dr. Ives, at the request of the Convention, proposes to publish.

The present volume is so far original as that, with small exceptions, it has been written out in my own language, and contains my individual views and observations. In those particulars, with which I am not experimentally conversant, I have endeavoured to draw from sources of authority and of modern date. It has not been thought necessary, in all cases, to point out these sources ; for a work which is intended to compress in a short space a multitude of separate and often minute facts, would be rendered cumbersome by such reference. As to those subjects, upon which chemists and physicians still disagree, and of which the science of *Materia Medica* furnishes not a few ; if in any case I have been drawn into error, I shall be consoled by the hope, which belongs also to others who tread the same path, that time and the progressive developement of knowledge, may promote the improvement both of authors and of their works.

TERMS OF CLASSIFICATION.

FOR reasons already given, the alphabetical arrangement of subjects has been adopted in this volume, in preference to any of the common modes of classification, which tend to divide the qualities of substances, and render a repetition of them necessary under different heads. Classifications, no doubt, assist the memory of students, and are useful in courses of instruction. Certain terms, also, of classification will, from convenience, be always kept up in medical books. But since medicines have each their own peculiarities, the application of general characters to large groups of them, tends to lessen their individuality, and in some measure to confound their properties together. This is particularly the case, when the description of any class is rendered too minute, or when the properties of one or two leading substances are made a standard for the rest. Castor oil and elaterium are cathartics; mercury and mezereon are sialagogues; magnesia and muriatic acid antilithics; yet any deduction which should be drawn from their community of character in this respect, and which should cause them to be regarded as similar medicines, and applicable to the same cases, would lead the student into material error.

It may be expected, however, that a treatise on *Materia Medica* should contain some explanation of the mode, in which medicines

are most commonly arranged ; and it is necessary to give definitions, at least of such general terms as continually recur among writers on medical science. Arrangements founded on the natural and physical relations of bodies are at the present day but little used in the *Materia Medica* ; but such grounds of generalization as are taken from the medicinal operation of substances on the properties and functions of the body, or from the parts of the animal system, which they more immediately influence, have been adopted by many late writers on the science.

In their medicinal operation, some remedies are very general and extensive, others extremely limited ; so that some general denominations must include others less general within them. Various terms have been introduced into medicine as indicative both of general and of particular kinds of operation, either in health or disease ; and those medicines, which produce similar operations, have been placed in the same classes or orders. Without commenting on the superiority of any one arrangement over another, or attempting to remove the difficulties which are attached to them all, I shall merely offer my own acceptations of those terms, which are most commonly in use among practical writers on medicine.

STIMULANTS.

Agents which excite motion, or effects which appear to result from motion, in the living body. Some stimulants act only on the skin or mucous membrane, to which they are applied ; others influence the circulating system ; others more particularly the organs of secretion and excretion ; while some affect many of these parts of the body at once. It is not necessary for the production of their effect, that they should be conveyed to the part to be stimulated ; and although some of them are perhaps absorb-

ed, there are many which act by sympathy. The term is sometimes applied to agents which produce sensation, as well as to those which cause motion ; but medicinal stimulants are chiefly, perhaps wholly, found in the latter class. *Ammonia, Wine, Preparations of mercury.*

SEDATIVES.

Medicines which diminish irritability and sensibility, or lessen the power of the body to be acted upon by agents, calculated to produce motion or sensation. Some sedatives appear to be immediate and general in their effect ; others have a previous stimulating operation ; others are partial in the extent of their influence. *Prussic acid, Opium, Alcohol, Lead.*

NARCOTICS.

Substances are so called, which act upon the brain and nervous system, producing the phenomena of intoxication. In their peculiar effects on particular parts of the system, the individual narcotics differ very considerably from each other. *Opium, Alcohol, Digitalis, Dulcamara.*

ANTISPASMODICS.

This name has been given to medicines, which subdue or alleviate spasm, independently of the removal of its cause. The most powerful of these are found among the narcotics ; but there are others, which have a certain efficacy, without disordering the cerebral functions. *Ammonia, Valerian, Assafœtida.*

REFRIGERANTS.

Medicines which diminish morbid heat of the body. Their effect is usually accompanied with some watery evacuation. *Vegetable acids, Neutral salts, Water.*

ALTERATIVES.

This name is applied to substances, which are found to produce a change in the system favorable to recovery from disease, but not with certainty referable to the action of any other class; as in cutaneous diseases, intermittents, syphilis. Their effect often appears in an altered action of the extreme vessels. *Arsenic, Sulphur, Mercury.*

ASTRINGENTS.

These condense or constrict the animal fibre, and are applied to repress inordinate discharges, both by actual contact, and through the medium of sympathy. *Oak, Alum, Acetate of lead.*

TONICS.

Medicines so called increase permanently the tone and vigour of the body when debilitated, or tend to restore the strength to its natural standard, when depressed below it. They act primarily upon the stomach, increasing appetite and the power of digestion. They also invigorate other parts of the body, probably by sympathy, or by improving nutrition. Tonics are of no use to the healthy, and become inert or injurious when long continued. *Gentian, Cinchona, Preparations of iron.*

EMETICS.

Substances which produce vomiting. They probably act through the agency of the brain and nervous system, since motions of the body and slight nervous irritations produce speedy vomiting, and some emetics, when injected into the circulation, operate more quickly than when received into the stomach. The diaphragm and abdominal muscles are principal agents in

the act of vomiting. How far the stomach itself is actively engaged in this process, is a point not settled among experimenters. The œsophagus, and probably also the duodenum, take on an inverted motion. When emetics do not operate, they may produce nausea and diaphoresis, or purging. *Ipecacuanha*, *Tartarized antimony*, *Sulphate of zinc*.

CATHARTICS.

Medicines of this kind promote the alvine discharges, either by quickening the natural peristaltic motion, or by increasing the secretion of fluids from the inner coat of the intestines and from the neighboring organs. Particular cathartics differ from each other in the time requisite for their effect, the power with which they operate, and sometimes in the kind of discharge they occasion. The milder kinds, or *laxatives*, are suited to free the bowels from offensive contents; the more powerful or *drastic* ones are employed as depletive remedies in disease. *Castor oil*, *Senna*, *Jalap*.

DIURETICS.

Medicines which increase the quantity of urine independently of the volume of liquid taken into the body. Those which act upon persons in health, apparently do so by stimulating the kidneys to a greater excretion, either by entering the circulation, or by the sympathy of those organs with the alimentary canal. Some substances are diuretic in dropsy, which are not so under other circumstances. These appear to act either by controlling the disease, and allowing the natural restorative processes to take place; or by exciting the absorbents to greater action. The dis-

charge from the kidneys is commonly in an inverse ratio with that of the bowels and skin. *Squill, Supertartrate of potass, Digitalis.*

DIAPHORETICS.

This name is given to medicines which promote perspiration. They are also called *Sudorifics*. Some of them have apparently a specific action on the cutaneous vessels; others are merely general stimulants, which may be determined to the skin, or elsewhere, by the influence of external circumstances. Exercise or warmth will cause a medicine to operate on the skin, which, under opposite circumstances, would act upon the kidneys. Diaphoretics produce some depletion, but are principally useful by the determination which they cause to the surface of the body, and by the restoration of a suppressed excretion. *Acetate of ammonia, Powder of ipecac. and opium, Alcohol.*

EMMENAGOGUES.

Substances supposed to promote the catamenial discharge. This is an irregular and uncertain class, owing to the diversity of cases which require their aid. In *retention* of the menses, tonics are principally of use. In *suppression*, depletive remedies or particular stimulants may be required, according to the circumstances of the case. Medicines, which act powerfully upon the neighboring organs, commonly stimulate the uterus. There are also some which appear to act specifically on that organ. *Aloes, Black hellebore, Savin.*

EXPECTORANTS.

Medicines thus denominated are supposed to promote the secretion from the mucous membrane of the lungs. In various pulmonary diseases, the subsidence of inflammation is attended

with an increase of expectoration, which had been previously deficient. Certain remedies are supposed to aid this natural process. Those are most effectual, which apparently act by abating pulmonary inflammation. *Submuriate of mercury, Tartarized antimony*. But there are others, of a more stimulating nature, which are found to facilitate expectoration in inflammations of the mucous membrane, and in the secondary stages of inflammation of the substance of the lungs. *Squill, Senega*.

SIALAGOGUES.

Substances which increase the discharge of saliva. The chewing of dry substances will produce this effect. Acrid stimulants, topically applied, are still more effectual. *Cayenne pepper, Mezereon*. *Mercury* produces a disease of the mouth and its glands, which terminates by salivation.

ERRHINES.

Topical stimulants which excite the mucous discharge of the nares. When employed to produce sneezing, they are called *Sternutatories*. *Tobacco, Subsulphate of mercury*.

EPISPASTICS.

Topical stimulants which inflame the skin and cause an effusion of serous fluid under the cuticle. When they merely produce redness and inflammation, without serous effusion, they are called *Rubefacients*. *Cantharides, Ammonia, Mustard*.

CAUSTICS OR ESCHAROTICS.

Substances which destroy the vitality of a part to which they are applied, uniting chemically with it. *Potass, Nitrate of silver, Arsenic*.

ANTACIDS.

Improperly called *Absorbents*. Earthy or alkaline substances which neutralize acids in the stomach. *Lime, Magnesia, Soda.*

ANTILITHICS.

Medicines supposed to counteract a calculous diathesis, and prevent or moderate the deposition of stony concretions in the bladder or kidneys. Some have received the name of *Lithontrip-tics*, from a power attributed to them of dissolving or wearing away these concretions; but the existence of such a class is problematical. Antilithics are chemical remedies, those of the alkaline sort being applied to cases of lithic or uric calculus, and those of the acid kind being given for the fusible and mulberry calculus. *Magnesia, Potass, Muriatic acid.*

ANTHELMINTHICS.

Medicines which expel worms from the alimentary canal. Those which operate as cathartics are most effectual, though some are supposed to possess a peculiar property, which is noxious to the worms themselves. Lumbrici are easily extirpated by them, tæniæ with more difficulty, ascarides very rarely. *Submuriate of mercury, Oil of turpentine, Spigelia.*

DEMULCENTS.

Mild and viscid substances, supposed to protect irritable surfaces from the action of morbid stimuli. They sometimes operate by immediate contact, but more frequently through the medium of the circulation, or by sympathy. The dilution with which they are accompanied, no doubt, enhances their effect. *Gums, Mucilages, Fixed oils.*

EMOLLIENTS.

Warm and moist applications which have been supposed to soften the parts to which they are applied. It is doubtful whether they have any efficacy, except from the heat they communicate, unless on the cuticle merely. *Fomentations, Poul-tices, Steam.*

WEIGHTS AND MEASURES.

IN the operations of chemistry, it is customary to define the quantity of substances, both solid, liquid and gaseous, by the standard of weight. As this standard affords the most accurate mode of adjusting proportions, and is the only one which can be readily applied to bodies in all their forms, the Colleges of Edinburgh and Dublin have made it their only mode of designating the quantity of articles employed in pharmacy.

This method is in theory undoubtedly the best. It is not, however, found to be the most suitable for practice. The inconvenience of weighing liquids is such, that apothecaries, in preparing their compositions in the large way, generally fix upon certain measures as the representatives of particular weights of fluids, and employ them as substitutes. Physicians also, in prescribing liquids to their patients, are obliged to indicate the doses by some convenient measure, since families are not often provided with the means of weighing liquids. From motives, probably, of this sort, the London College has devised a system of *fluid measures*, which they have in most instances applied to indicate the quantity of liquids. In this system the pint of wine measure is divided into sixteen fluidounces, or its fractions are analogous to those of the pound in the avoirdupois scale of weights. For solids the standard of Troy weight is used.

The compilers of the American Pharmacopœia have adopted their system of weights and measures, without alteration, from the London College. Where weights have been converted into measures, as in formulæ taken from the Edinburgh and other Pharmacopœias, they have commonly substituted pints for pounds, and fluidounces for ounces. In most preparations made with water and alcohol, this approximation is near enough for practical purposes, and is better than to have encumbered the Pharmacopœia with a precise indication of minute fractional parts. In the tinctures, decoctions, infusions, &c. the quantity of liquids is generally indicated by the term *pints*. Now a pint of water weighs 7272 grains, and exceeds a pound of the same fluid by about one-fifth. A pint of alcohol, on the contrary, very nearly coincides with a pound, or the difference is only about one-twentieth part, which is of no consequence in practice. It follows from the substitution made, that a part of the American tinctures, decoctions, &c. are in a small degree weaker by calculation, than those of Edinburgh and Dublin, which they are intended to resemble. But when we recollect, that a given amount of organized vegetable substance gives out more of its weight to a large menstruum than to a small one, this difference of strength is less in reality, than it appears to be by computation. And in all cases where the menstruum is supersaturated with materials, there will be no difference whatever.* To this it may be added, that as the general custom of apothecaries in our large cities is to use measures instead of weights, most of our compound liquids will continue of the same strength, which those of the same origin and name have hitherto had.

In compounds containing fluids of very different specific gravities—as for instance the mineral acids and alcohol or water—the

* See some remarks on this head under *Tinctura opii*.

substitution of measures for weights, in the manner which has been described, obviously occasions a great change from their former strength. An approximating correction for the difference of specific gravity is therefore necessary. Such an one is made in the *Tincture of sulphuric acid*, but appears to have been overlooked in the *Diluted sulphuric acid*. This latter preparation, together with a few others in which a similar amendment appeared necessary, have been corrected in a list of *Corrigenda* published since the Pharmacopœia.

A difficulty occurs in the measurement of small fluid quantities, occasioned by the concave and convex surface which liquids form under different circumstances, and the deceptive refraction of many of the graduated glass measures. To remedy this evil, glass measures, designed for small quantities, have during several years past been made for sale at the Boston glass manufactory, and are kept by a large portion of the apothecaries and families in this city. They are of a narrow cylindrical form, having the top ground off to the requisite capacity. The small surface they present renders their use easy and not deceptive. By families the measure of a fluidrachm is substituted for that of a teaspoon, and that of half a fluidounce for a table-spoon.

For measuring minute quantities of liquids, the *minim*, or sixtieth part of a fluidrachm, is employed in the Pharmacopœia, instead of the very indefinite term *drop*. Practitioners may be obliged to make extemporaneous use of drops as the nearest representatives of minims; but apothecaries should be provided with minim glasses, like those adopted by the London College, and apply them wherever it is practicable.

DOSES OF MEDICINES.

THE doses indicated under the respective articles of this work are the appropriate doses for adults, under ordinary circumstances. Occasional exceptions, however, will be found to result from sex and idiosyncrasy, in regard to particular medicines; also from the circumstances of the case, in which they are prescribed. For children the dose must be reduced in proportion to their age. Dr. Young has laid down as a rule that, for children under 12 years of age, the doses of most medicines must be diminished in proportion of the age to the age increased by 12. Thus the dose for a child at 3 years will be as 3 to 15, or $\frac{1}{5}$ part of a full dose. The rule will give the following doses for different ages :

At 1 year the dose will be $\frac{1}{15}$							
2	.	.	.	.	.	.	$\frac{1}{7}$
3	.	.	.	.	.	.	$\frac{1}{5}$
4	.	.	.	.	.	.	$\frac{1}{4}$
6	.	.	.	.	.	.	$\frac{1}{3}$
12	.	.	.	.	.	.	$\frac{1}{2}$

This rule will apply to many of the more powerful medicines, particularly such as are not of the evacuating kind. But of purgatives, and even of emetics, infants generally require larger

doses than the rule allows. Thus an infant under a year old frequently requires from $\frac{1}{8}$ to $\frac{1}{4}$ of the dose of an adult, before an effectual operation can be produced. This happens with the common medicines, Castor oil, Rhubarb, Calomel, Ipecacuanha, &c. Of Castor oil, indeed, an eighth part of an adult dose is required by infants under a month old, and is frequently given soon after birth.

MATERIA MEDICA.

ACACIÆ GUMMI.

Acacia Gum, called Gum Arabic.

ORIGIN. Gum Arabic is imported into this country from the north of Africa and from the East Indies. The African sort is obtained from a small tree, the *Acacia vera* of Willdenow, or *Mimosa nilotica* of Linnæus, growing in the mountainous parts of the interior. The East India gum is afforded by another tree, the *Acacia Arabica*, and is somewhat darker coloured and less soluble than the former. The gum exudes from the bark of these trees, and concretes in the form of tears on the outside. It appears to be the product of disease, as the greatest quantity is procured from the most sickly trees, and in the hottest seasons.

QUALITIES. This gum is usually in roundish, irregular pieces, hard, brittle, yellowish, semitransparent and insipid. It does not melt by heat. With water it forms a viscid solution or mucilage, and it is also soluble in acids and alkaline liquids. It is insoluble in alcohol, ether and oils; yet by trituration it renders oils miscible with water.

USES. In a medicinal view, this article is merely a demulcent, and is employed in solution to protect irritable surfaces from the action of acrid stimuli, or to render excreted fluids more bland and inoffensive. It allays the irritation of the throat in catarrhal complaints, and sheathes the intestines in diarrhœa and dysentery. It is highly useful in strangury, and operates

as a palliative in nephritic and calculous cases. Gum is nutritious, and we are told by Hasselquist and others, that caravans in Africa have subsisted for some time on no other food. Magendie found that dogs fed upon it, became emaciated and died; but the experiment of a carnivorous animal is not a test for the human species.

Mucilage of gum Arabic, being very prone to the acetous fermentation, especially in hot weather, should always be an extemporaneous preparation. It may be readily formed of any consistence, by rubbing the powdered gum with water, gradually added, in a glass or earthen mortar.

ACETUM.

Vinegar.

ORIGIN. Vinegar, in the United States, is principally made from cyder, by exposing that liquor in a warm place until the acetous fermentation is completed. In Europe, wines and malt liquors are employed. Solutions in water, of sugar or of gum, are also capable of producing vinegar by fermentation, as is likewise the sap of certain trees. The acetous fermentation may be produced in any of these liquids, by adding to them a little yeast, and exposing them in vessels, to which the air has access, in a temperature between 70° and 90°. The liquor gradually grows turbid, a disengagement of carbonic acid takes place, a sediment is at length deposited, and the liquid, on becoming clear, is found to have lost its saccharine and vinous or intoxicating qualities, and to have acquired a sharp, acid taste.

QUALITIES. Good vinegar is transparent, of a yellowish or reddish colour, and an agreeable odour and taste. It consists of acetic acid largely diluted with water, and holding gluten and other vegetable substances in solution. The presence of these cause it to become turbid or mouldy, when exposed to the air, and eventually to putrefy. It is concentrated by freezing, and

purified by distillation, or by powdered charcoal. Vinegar is sometimes adulterated with sulphuric acid, which may be detected by saturating it with chalk, and adding distilled water to the solution. An insoluble sulphate of lime will be formed, if sulphuric acid be present. The vinegar procured by the distillation of wood, and which has been called pyro-ligneous acid, has an empyreumatic taste, of which it is difficult wholly to divest it.

USES. Vinegar is more used as a condiment and a preservative of animal and vegetable substances, than as a medicine. It has, however, like other vegetable acids, the properties of a refrigerant, antiseptic and diuretic. It acts as an antidote to the effects of opium and other narcotics, after those substances have been discharged from the stomach; but it may prove injurious, if given before, by increasing their solubility and absorption. Combined with salt, it forms a popular gargle in sore throats, and its vapour is sometimes inhaled in the same complaints. Externally, it is employed to quicken the action of sinapisms, and to prepare the skin for the application of blisters. Diluted with water, it is used to cleanse the skin in febrile diseases, by sponging or wiping, and has often a salutary and grateful effect. The vapour of vinegar is highly useful in purifying the atmosphere of sick rooms and tainted apartments.

ACETUM DISTILLATUM.

Distilled Vinegar.

Distilled vinegar is weaker than common vinegar, but more pure. Its specific gravity is somewhat greater than that of water, but varies according to the quality of the vinegar employed. For most medicinal and pharmaceutical purposes, it is inferior to the following article.

ACETUM PURIFICATUM.

Purified Vinegar.

Charcoal has the property of abstracting from vinegar a great portion of its gluten and colouring matter, thus rendering it less liable to decomposition, without impairing its strength. Vinegar purified in this manner is peculiarly proper for the purposes of pharmacy.

ACETUM OPII.

Vinegar of Opium, commonly called Black Drop.

The formula for this preparation, in the Pharmacopœia, is essentially the same with the one made public by Dr. Armstrong, and which, under the name of *Black Drop*, has been known and prized in England for a century and upwards. As the recipe wants the usual precision of pharmaceutical formulæ, it may be proper to secure a tolerable uniformity of strength, by boiling the first ingredients no longer than is necessary to blend them together, and by afterward exposing them in a warm place, until about one-fourth of their original volume is evaporated. The compound directed in the Pharmacopœia should afford about two pints of strained liquor. As the *filtration* of so viscid a liquor is difficult, it may be strained without pressure through a double linen bag.

QUALITIES. The black drop is a fermented aromatic vinegar of opium. Its taste, when properly prepared, is bitter and acid, the saccharine principle being changed by the fermentation. Its consistence is moderately viscid.

USES. Acetous solutions of opium have been in use since the days of Van Helmont, and even earlier. Our medical

chemists of the present day consider that the peculiarities, which attend the operation of these preparations, depend upon the formation of an acetate of morphia. The black drop has sustained its popularity for a great length of time on account of its favorable operation. According to Dr. Armstrong, it often stays in the stomach when other preparations will not, and it also affects the head less than laudanum. Dr. Paris and other medical writers give their testimony to its usefulness.

EXHIBITION. About ten or twelve minims form a dose. Notwithstanding the advantages ascribed to this preparation, it is not always uniform in its strength, or in the amount of sediment it deposits. It is probable that a better vinegar of opium might be prepared.



ACETUM SCILLÆ.

Vinegar of Squill.

Vinegar is one of the most effectual solvents for the active matter of the squill. The proportions of the Edinburgh formula, which has been most used in this country, and of the American now adopted, are the same, except that, by the conversion of weights into measures, the American article contains a little more vinegar, and less alcohol.* For reasons stated under the head of Weights and Measures, the strength is not greatly different.

EXHIBITION. The dose for an adult, as an expectorant or diuretic, is from a half to two fluidrachms. Children are often vomited with half a fluidrachm. The chief use, however, of this preparation is to form the *syrup of squills*, an article which keeps better, and is more palatable.

* The Edinburgh College appear to have changed their denominations, but without changing the strength of this article, as has been asserted; one half of all the previous quantities being taken.

ACIDUM ARSENIOSUM.

Arsenious Acid, called White Arsenic.

ORIGIN. The red cobalt ore, found in Bohemia and Saxony, furnishes a great part of the white arsenic of commerce. The arsenic is separated by roasting the ore till it sublimes. Sometimes, also, it is obtained from arsenical pyrites by sublimation.

QUALITIES. It comes to us, usually, in lumps of a shining semivitreous appearance, breaking with a conchoidal fracture, and, when reduced to powder, having an opacity and whiteness like fine powdered sugar. It has the properties of an acid in combining with the alkalies to saturation, and in reddening infusions of litmus. Its taste is acid and corrosive, leaving on the tongue an impression of sweetness. By the experiments of Proust and Davy, it appears to consist of 75 parts of metallic arsenic and 25 of oxygen. By distillation with nitric acid, it may be further acidified, producing the *arsenic acid*, which contains 67 parts of metal and 33 of oxygen. Its specific gravity is 5, and it rises in vapour at 383° of Fahrenheit. It is, in this state, without odour, and although it is usually supposed to emit an alliaceous smell, yet Dr. Paris asserts, that this smell is wholly confined to metallic arsenic, and cannot be produced by the arsenious acid, except it be partially decomposed. White arsenic is *soluble* in four hundred parts of water, at the temperature of 60°, and in only thirteen, at 212°. The latter solution, on cooling, retains three parts in one hundred, and deposits the rest in tetrahedral crystals. Alcohol and oils are also capable of dissolving it.

TESTS. In cases of supposed poisoning by arsenic, it is extremely important to be able to detect it, if present even in minute quantities. For this purpose, the contents of the stomach should be diluted with water, and after time has elapsed sufficient for the arsenic to subside, the fluid should be poured off and the sediment preserved. The fluid should also be preserved

to increase the opportunities of detection ; likewise the coats of the stomach should be washed, and the water saved for examination.—I. If the sediment contains a white powder, or any thing of suspicious appearance, it should be mixed with three times its weight of black flux made of charcoal one part, and dry subcarbonate of potass two parts, and put into a thin glass tube, closed at one end, about half a foot long and one quarter of an inch in diameter. The mouth of the tube must be stopped with paper or clay, and the lower end, containing the powder, should then be held in the flame of a lamp. If arsenic be present, it will be found sublimed, and lining the upper part of the tube in the form of brilliant metallic scales. These, if removed and laid upon hot iron, will exhale fumes characterized by a strong smell of garlic.—II. Let a small portion of the powder be dissolved in two drachms of hot distilled water, with three grains of subcarbonate of ammonia ; then add to this a warm solution of five grains of sulphate of copper. If arsenic be present, a bright grass-green precipitate will take place.—III. Introduce two or three grains of the suspected powder into a clean Florence flask, and add to it eight ounces of distilled water. Heat the solution till it begins to boil ; then add to it a grain or two of subcarbonate of potass, frequently agitating the mixture. Pour into a glass about an ounce of the solution, and touch the surface of it with a stick of nitrate of silver. If arsenic be present, a beautiful yellow precipitate will instantly proceed from the point of contact, and settle towards the bottom. This method, first proposed by Mr. Hume of London, has been thus modified by Dr. Paris : On a piece of white paper make a broad mark with the suspected fluid prepared as above. Along this line a stick of lunar caustic is to be slowly drawn several times successively, when, if there is any arsenic, a colour will be produced resembling that known by the name of Indian yellow ; it will remain permanent for some time, and finally become brown. These changes distinguish arsenic from the alkaline phosphates, which, when similarly treated, produce a yellow, which turns into a *sad green*, and ultimately becomes quite black.

EFFECTS ON THE HUMAN SYSTEM. When arsenic, in any considerable quantity, is taken into the body, it speedily manifests its presence by a train of distressing symptoms. These are, dryness of the throat, intense thirst, a burning sensation in the stomach, gripings, vomiting, tremors and convulsions, delirium, palsy, cold sweats, hiccoughing, and at last death. It speedily corrodes the coats of the stomach and intestines, and leaves the whole body in a swollen and highly putrescent state. When the quantity taken is not sufficient to destroy life, it leaves the patient with a train of lingering symptoms, such as hectic, tremors and paralysis.

ANTIDOTES. Nothing can rescue a patient, when much arsenic has been swallowed, but the speedy evacuation of the poison. The stimulating property of the arsenic itself occasions vomiting; but this should be hastened by full doses of the sulphate of zinc, and by irritating the fauces. At the same time the patient should swallow freely the whites of eggs, or milk, which, by coagulating round the particles of arsenic, may protect the stomach from their action till they are evacuated. Lime water should likewise be given, which may cover the particles with an insoluble arsenite of lime, and suspend their activity. A solution of common soap may be given, if nothing else is at hand. The sulphuret of potass, recommended by M. Navier, does not possess the same confidence now as formerly.

MEDICAL USES. Arsenic is employed in medicine, both externally and internally. It came into notice more particularly about a century ago, when a rage was prevalent for finding active medicines among poisonous substances. Since that period, it has constituted a powerful agent in the hands of empirics, and has formed the basis of a number of secret applications, especially in the disease of cancer. In this disease it acts by its escharotic power, and does not effect a cure, except by total extirpation of the diseased part; a process far more tedious and painful than excision by the knife. It is even dangerous, when extensively applied to a denuded surface. A part of its reputation is no doubt founded upon spurious cures, performed in cases, which have been pronounced cancerous, without being really so.

Internally, arsenic is now employed, with great benefit, in several diseases. Its efficacy in intermittent fever has been abundantly tested, both in this country and Europe, especially in the French and British armies, at periods when bark in sufficient quantities was not to be obtained. From the reports made respecting it, it has evidently great power in controlling this disease, especially when given seasonably. In constitutions previously impaired, also in intermittents combined with much debility, it is said to be inferior to cinchona. Probably a combination of the two is more effectual than either singly. Such I have believed to be the case in periodical or intermittent head-ache, which arsenic alone cures with great certainty, but appears to remove more promptly when combined with bark. Obstinate cutaneous diseases of various kinds are more under the control of arsenic than of any other medicine, if perhaps we except the oxymuriate of mercury. In tetanus, arsenic has been successfully administered in larger doses than would be accounted safe in other diseases.

EXHIBITION. It is unnecessary to give arsenic in any other form than that of the *Liquor potassæ arsenitis*, which see.

LIQUOR POTASSÆ ARSENITIS.

Arsenical Solution.

This preparation is essentially the same with that known by the name of *Fowler's mineral solution*. Pure alcohol is substituted instead of compound tincture of lavender, which, from the variety of its ingredients, may produce chemical changes. In common cases, where arsenic is required, this solution may be given in *doses* of five minims, three times a day, and increased by one minim at each dose, till it occasions nausea or unpleasant sensations in the stomach and head. In tetanus, it has been given in doses of ten drops every hour, and oftener, in a spoonful of brandy, with ten drops of laudanum, during a whole

night, and occasionally afterwards. Its effects were thirst, tumified abdomen, and profuse diarrhœa.*

The internal use of arsenic should rarely be continued beyond ten or twelve days at a time, and it should be immediately suspended, if an œdematous swelling appears about the eyes, if a cough is produced, a sore mouth, or permanent pain in the stomach. It should not be given to persons disposed to phthisis.

ACIDUM BENZOICUM.

4

Benzoic Acid.

This acid, formerly called *Flowers of Benzoin*, is inodorous, when perfectly pure, with a pungent, acrid, acidulous taste. It exists in minute, soft, acicular crystals and flakes of a white, silken appearance. When heated, it emits a suffocating odour, and burns with a white flame. It is *soluble* in twenty-four times its weight of boiling water, but nineteen-twentieths are deposited on cooling. Alcohol dissolves it more largely. It forms salts with alkalies, earths and metallic oxides. According to Berzelius, it consists of 74.41 carbon, 5.16 hydrogen, and 20.43 oxygen.

It is a stimulant article, not much used except as an ingredient in the old paregoric elixir.

ACIDUM CARBONICUM.

Carbonic Acid.

This acid is obtained pure only in the state of gas. It is a compound of seventy-two parts of oxygen, with twenty-eight of

* See a paper by Dr. Miller, in the New England Journal, vol. vii. p. 34.

carbon. It does not support flame, and, when respired, is deleterious to animal life. Water, at the common pressure of the atmosphere, takes up about its own volume of this gas ; but under increased pressure, it receives much more. The gas is liberated again by boiling or freezing the water. Carbonic acid combines with salifiable bases, from which it is dislodged again by most other acids, or simply by heat.

USES. It is employed in the formation of medicated waters, to which it communicates a refreshing, stimulant, diaphoretic and diuretic quality.



ACIDUM CITRICUM.

Citric Acid.

Citric acid crystallizes in white, transparent, rhomboidal prisms, or in double, four-sided pyramids, joined at base. It is without smell, but exceedingly acid, and almost caustic. It is *soluble* in less than its weight of cold water, and in half its weight of boiling water. Its medical properties resemble those of lemon juice, to which it is preferable in long voyages, and situations in which the juice is liable to spoil. One scruple renders pleasantly acid a pint of water. Citric acid affords a precise mode of forming effervescent draughts. Fifteen grains neutralize a scruple of subcarbonate of potass.



ACIDUM MURIATICUM.

Muriatic Acid.

ORIGIN. Muriatic acid, called by Sir H. Davy hydrochloric acid, is procured in the form of gas, by distillation from sea salt and sulphuric acid. According to Davy, it consists of chlorine

or oxymuriatic gas, combined with an equal volume of hydrogen. The liquid acid is water combined with this gas.

QUALITIES. The liquid acid is transparent, colourless, or slightly yellowish. When exposed to the air, it emits fumes of a pungent, suffocating odour. Its taste is intensely sour and caustic. It is, however, less powerful than the nitric and sulphuric acids.

USES. Largely diluted with water, it is employed as a gargle in ulcerated sore throats, and less diluted as a topical stimulant to erosive ulcerations of the gums. Internally it has been administered as a tonic, antiseptic and refrigerant in typhoidal fevers. It is also said to be successful in some cutaneous diseases. In calculous complaints of a certain kind, it is particularly indicated. The medical and chemical treatment of these disorders, according to Dr. Marcet, must vary with the chemical constitution of the urine, and the nature of its deposits. When lithic acid predominates, alkalies are the appropriate remedies; but when the phosphates of lime and magnesia constitute the basis of the deposits, acids are the proper medicines to be used. Of these, the mineral are preferable to the vegetable, as being less subject to decomposition in the stomach. If they do not enter the circulation sufficiently unchanged to affect the concretions, they serve nevertheless to counteract the alkalescence, and in some degree to prevent or change the character of the urine, which is most favorable to calculous depositions. Dr. Marcet prefers the muriatic acid to the rest.

EXHIBITION. It is given in *doses* of from five to twenty-five minims, three times a day, sufficiently diluted with water.

All the strong acids attack and corrode the teeth. They should therefore be drunk through a quill or tube, and the mouth rinsed immediately after. Whatever be the dose, it should be diluted with water to about the acidity of lemonade. An overdose is recognized by a sense of pain and constriction in the stomach.

Fumigations of the muriatic acid, and still more of the oxymuriatic, or chlorine, are highly useful in neutralizing the impure and infectious vapours of hospitals and tainted apartments.

The latter is extemporaneously produced by pouring sulphuric acid gradually on a mixture of common salt and black oxide of manganese, two parts of the former to one of the latter. As this vapour is corrosive and suffocating, it cannot be tolerated in large quantities, and must therefore be disengaged slowly and with caution, in rooms which are inhabited.

ACIDUM NITRICUM.

Nitric Acid.

ORIGIN. Nitric acid, called in commerce *Aqua fortis*, is obtained from nitrate of potass and sulphuric acid, by repeated distillation. It consists of 74.03 of oxygen, and 25.97 of nitrogen, combined with water to the amount of one-third of the whole; and from which it has never yet been separated in a simple state.

QUALITIES. When pure, it is transparent and colourless, emitting white fumes of a peculiar suffocating smell, when exposed to the air. Its taste is intensely acid and corrosive. It stains the skin of a permanent yellow, which cannot be obliterated till the cuticle separates. It is decomposed with violent action by the simple combustibles, some of which it inflames. It boils at 210°.

USES. Diluted with water, this acid at one time acquired considerable celebrity as a remedy in syphilis, in India; but subsequent experience has not confirmed its antisypilitic power. It is useful as an auxiliary to mercury, when the constitution is so much impaired as to suffer greatly under the debilitating effect of a mercurial course; since it possesses a certain degree of tonic power, and appears instrumental in suspending some of the graver symptoms of the disease. It has been administered with use in chronic hepatitis, and in some of the forms of dropsy. Water, acidulated with nitric and muriatic acids, was employed by Dr. Scott, in India, as a bath in these diseases, with

alleged advantage. In some old ulcerations of the legs, nitric acid has been thought serviceable, taken internally, and applied in its diluted state as a wash.

EXHIBITION. The London College direct a diluted nitric acid, containing one fluidounce of acid to nine of distilled water. The *dose* of this is from twenty to forty minims in a glass of water. It may be gradually increased till it causes inconvenience. With mercury it may be given alternately but not simultaneously.

Recently the nitric acid has been employed to quicken the process of vesication. The acid is diluted with about one-third of water, and brushed upon the skin with a feather. As soon as pain is complained of, the acid is neutralized with an alkaline solution, and the cuticle can sometimes be detached. The cutis may afterwards be irritated with a common vesicating plaster.

ACIDUM SULPHURICUM.

Sulphuric Acid.

ORIGIN. This acid, called *Oil of vitriol* in commerce, is formed in the large way, by the combustion of sulphur mixed with one-tenth of nitrate of potass, in a vessel situated in a close chamber lined with sheet lead, the floor being covered with water, which, by absorbing the sulphurous acid gas, after the process has been kept up for two or three weeks, becomes converted into liquid sulphuric acid. No process has been found adequate to procure this acid free from water. The liquid acid, in its strongest state, contains, according to Sir H. Davy, thirty parts of sulphur to forty-five of oxygen and seventeen of water.

QUALITIES. It is a thick, heavy liquid, transparent and colourless, with a consistence resembling that of oil, whence its former name. A small portion of vegetable or carbonaceous matter, even the dust of an apartment, changes it to a dark colour, on which account it can only be kept clear in glass-stopped bottles. It has a strong affinity for water, evolving

much heat when mixed with it, and absorbing it in large quantities from the atmosphere. Like the other mineral acids, its taste is intensely sour and caustic. It corrodes the cuticle, but less rapidly than the nitric acid. It freezes at 15° , and boils at 560° .

USES. As a medicine it is astringent, tonic and refrigerant, and proves serviceable by allaying thirst, exciting appetite, and promoting digestion. It checks a tendency to fermentation in weak stomachs, and hence, though itself an acid, it counteracts morbid acidity in the stomach. It is valuable as an astringent in hemorrhages and debilitating discharges of different kinds. In hemoptysis, it often answers an important purpose as a secondary remedy after the more active means of depletion and vesication, or where the strength is too far exhausted to admit the use of the lancet. It possesses similar advantages as a medicine in menorrhagia, whether an immoderate flow, or too frequent return of the catamenia. Its superiority over other astringents seems to consist in its power of controlling inordinate discharges, without, at the same time, increasing the fever and arterial excitement, with which they are very frequently accompanied. An instance of this is found in the profuse night sweats, which attend on hectic fever. In this troublesome and debilitating symptom, I know of no medicine which can with propriety be substituted for the sulphuric acid, to restrain and suspend the discharge. Its operation is often immediate, even when the symptom in question has been of long continuance.

EXHIBITION. The common forms of exhibition are those of the *diluted sulphuric acid*, and the *tincture* ; which see.

ACIDUM SULPHURICUM DILUTUM.

Diluted Sulphuric Acid.

As a proper dose of pure sulphuric acid is too small to be conveniently measured, it is kept for internal use largely diluted

with water. As the American Pharmacopœia has adopted the London formula for citric acid, in which this article occurs ; it became necessary to adopt also the London diluted sulphuric acid, or one of similar strength. This is accomplished nearly enough, by substituting in the American formula *ten* fluidounces of water, as directed in the list of Corrigenda, instead of seven. The *dose* of this diluted acid is from ten to forty minims, with water sufficient to be pleasantly acid.

ACIDUM PRUSSICUM.

Prussic Acid.

Prussic acid derives its name from the common material which affords it, the *Prussian blue* of commerce. By Gay Lussac it is denominated *hydrocyanic* acid, and its gaseous base, *cyanogen*. It is obtained by various processes in different states of concentration and purity. Being a substance of unparalleled energy in its action on the human system, it is not necessary for medical purposes, nor safe, that it should be formed of its greatest strength ; although it is highly desirable that it should be uniform and permanent. A variety of methods for obtaining this acid have been proposed by different chemists, and may be found in the journals and modern works on chemistry. The process of Gay Lussac produces the acid in its greatest strength and purity, while those of Scheele and Vauquelin are preferred for medical use. The formula in the American Pharmacopœia is, with slight deviations, that of Scheele. In executing the directions, it is necessary that the receiver should be well covered with ice or iced water, to condense the acid and prevent its escape with the gases which are formed during the operation. Not only a portion of superfluous hydrogen occurs in the process, but, according to Vauquelin, carbonic acid and ammonia are evolved, when gaseous cyanogen combines with water. The prussic acid of our Pharmacopœia

contains a minute portion of sulphurous acid, from which, if desired, it may be freed by distillation with a little carbonate of lime; but it has been thought to keep better when not thus rectified.

Prussic acid is composed of hydrogen and a peculiar gaseous body, formed by the combination of nitrogen and carbon, to which Gay Lussac has given the name of *cyanogen*, and Dr. Ure, of *prussine*. The prussic resembles other acids in its combination with bases, and its action on vegetable blues; but differs from the acids of Lavoisier in not containing oxygen. It may be obtained from the mineral, vegetable or animal kingdoms.

According to Dr. Granville, the only *mineral*, which has been found to contain it, is the *fer azuré* of Haüy, having a fine blue colour.

It has been known for some time, that certain *vegetables*, principally of the family of *rosacées*, as the cherry laurel, peach, almond, apple, &c. afford prussic acid in minute quantity from their leaves, bark or seeds. It has also been known, that the distilled water of some of these, particularly the bitter almond and cherry laurel, is deleterious in its action on the animal economy. This coincidence of character, together with the similarity of smell, has led to the inference, that prussic acid is the seat and cause of the noxious property which these vegetables possess. We are authorized, however, to conclude, from some late experiments detailed in the *Dictionnaire des Sciences médicales*, that the poisonous property of these vegetables resides in another substance, and that the prussic acid is not concerned in producing it. According to M. De Lens, this deleterious principle is confined wholly to a volatile oil, which, although violently poisonous, does not contain a particle of prussic acid. The distilled waters, on the other hand, after being separated from the oil by filtration, although still charged with prussic acid, appear nearly inert, so that laurel water, thus separated, was given by Mr. Fouquier, in the dose of a pint, without injury.

In most *animal* substances, the elements of prussic acid exist, yet it requires the intervening agency of alkalies, and of

heat, to bring these elements into the requisite combination. There are, nevertheless, facts which seem to prove that this acid is sometimes spontaneously generated in the animal fluids and excretions, through the agency of disease or accident.

QUALITIES. Prussic acid, in its greatest purity, is liquid and colourless, with a pungent, suffocating odour resembling, when much diluted, the smell of bitter almonds or of peach flowers. Its vapour, when incautiously inhaled, occasions nausea, headache and faintness. Its taste is at first cool, then acrid and bitter. It is very inflammable, and combines readily with water and alcohol. Its specific gravity at $44\frac{1}{2}^{\circ}$ is $\cdot 7058$; and when concrete, $\cdot 600$. It boils at $81\frac{1}{2}^{\circ}$, and congeals at about 3° . It then crystallizes in a fibrous form, like nitrate of ammonia. The cold, which a part of it produces when converted into vapour, even at the temperature of 68° , is sufficient to congeal the remainder. Though repeatedly rectified from pounded marble, it retains the power of slightly reddening papers, coloured blue with litmus. It has a great tendency to assume the gaseous form, and is decomposed by a high temperature, and even by the action of light, so that it is necessary to keep it in a dark place. The acid of Gay Lussac, even when kept in close vessels without air, is sometimes decomposed in an hour, and can never be kept many days without shewing signs of decomposition. It commences by assuming a reddish brown colour, which continues to deepen; and gradually deposits a considerable quantity of carbonaceous matter. The acid of Scheele is much weaker than that of Gay Lussac, and has been preserved for a great length of time without change; though still liable, under certain circumstances, to spontaneous decomposition.

The name of *medicinal prussic acid* has been given to the acid, when so largely diluted with water as to render its internal exhibition apparently safe. Such are the preparations of Scheele, Vauquelin, Brande and Nimmo. Magendie employed the strong acid of Gay Lussac, diluted with six times its volume, or eight and a half times its weight of distilled water. It is worthy of remark, that most of these preparations have been

objected to in succession, as wanting permanency and uniformity of strength.

MEDICINAL PROPERTIES AND USES. Prussic acid, employed in a concentrated form, like that of Gay Lussac, is the most powerful and speedy of all known poisons. When a rod dipped in it is brought in contact with the tongue of an animal, it expires before the rod can be withdrawn. A bird, held for a moment over the mouth of a phial containing this acid, is found dead. Several instances have occurred, in which persons, either by accident or to commit suicide, have swallowed quantities of it, and immediate death has ensued. On dissection, the blood has been found liquid and of a dark blueish colour, the stomach and intestines inflamed, and a strong odour of the acid has pervaded every part of the body.

When prepared in its weaker forms, this acid has been brought into medical practice, and applied to the treatment of diseases. Among its strongest advocates have been Drs. Granville in England, and Magendie in France. According to the former of these, the medicinal effects of the prussic acid, given in moderate doses, are eminently of a sedative kind; and when given to a patient under a disease of vascular or other excitement, it diminishes irritability, checks a too rapid circulation, and calms many of the symptoms of fever. The spirits become subdued, the countenance placid, sleep undisturbed, respiration easy, and the pulse tranquillized. In a few cases, the sedative effects have been much more considerable, so that the patient expresses himself as if only "half alive;" there is an apparent entire prostration of strength, great lowness of spirits and unwillingness to move, speak or take food. The mind remains clear; there is an absence of pain; the heat remains natural; and the pulse, amid this suspension of excitement, is steady and quiet. This state of things lasts from twelve to twenty-four hours, and is not followed by the heaviness, head-ache and other symptoms, which follow opium and the narcotics. There are, however, individuals, in whom the acid does not produce these effects, but disagrees with the stomach, and cannot be persevered in.

It is asserted, that prussic acid is eminently advantageous as a palliative in confirmed tubercular phthisis, and that it has even cured that disease when formed, and frequently checked it at its commencement;—that it is highly successful in asthma, chronic catarrh, hooping cough and sympathetic cough from chronic diseases;—that it affords great benefit in painful and difficult menstruation, uterine hemorrhage, and hemoptysis, in nervous diseases and derangements of the stomach;—that it is a substitute for bloodletting in sub-acute inflammations, and for narcotics, when these cannot be employed.

That the prussic acid has been serviceable in many, if not in all the above diseases, there is too great an accumulation of evidence to permit us to doubt. But allowance must be made for the confidence and excitement, which always attend the introduction of new medicines, and which now give to the prussic acid what a multitude of other substances have heretofore enjoyed. It has been objected to this medicine that, unlike other energetic articles of the *Materia Medica*, it gives no warnings, by which we can easily determine the highest safe dose; that the transition from an effect which is imperceptible to one which is apparently dangerous is sudden, and sometimes follows the increase of the dose by a minute fractional part; that convulsions and suspended animation have ensued when a sixth part was added to what had before produced no sensible effect. To this is joined the consideration, that chemists are not agreed as to the best mode of preparing it, nor successful in preserving it of uniform strength and efficiency, so as to enable physicians at all times to calculate its power and effect.

I have had some experience with this medicine, prepared by Scheele's process, and have thought well of its operation as a palliative in phthisis; though an apprehension of its consequences has prevented me from carrying the dose to the height which appeared necessary to insure its full effect. In a case of hooping cough which came within my knowledge, it was taken for a week in gradually increasing doses, until convulsions followed the last dose; yet the disease was neither checked nor shortened in its duration.

The cases published by Dr. Elliotson are less favourable to the reputation of prussic acid than those of his predecessors, in most of the diseases in which it has been recommended. Dr. Macleod has called the attention of the profession to a new property of this medicine, when long continued, that of producing ulcerated gums and salivation.

EXHIBITION. Two minims of the acid of Scheele, recently prepared, may be taken in distilled water or syrup three times a day. Much larger doses have been taken, and are probably in some cases necessary, to produce the full benefit of the medicine; yet such doses are not exempt from hazard. It is probable that the action of this medicine is modified by difference of constitution, and also by the different nature of the contents of the stomach.

ANTIDOTES. In case of poisoning by prussic acid, vomiting should be effected as instantaneously as possible, and cordial stimulants, such as brandy, ammonia, oil of turpentine, &c. freely given; to which should be added warmth, friction and rubefaction with ammonia and other external stimulants.

ACONITUM.

Aconite.

The *Aconitum neomontanum* appears to have been the species originally used by Stoerk, though the *A. napellus* possesses properties perfectly similar. The former is a native of the mountainous parts of Carinthia and Carniola; the latter is frequently cultivated in gardens under the name of monkshood, wolfsbane, &c. They are dangerous narcotics, operating like hemlock and stramonium; and have been employed only in some intractable chronic diseases. I have found that a grain of the powder, when good, produces nausea and dizziness.

ADEPS.

Lard.

Hogs lard has an intermediate consistence between the tallow of ruminating animals and the oil of cetaceous ones. It is on this account a useful basis for many of the common ointments, and is much employed for this purpose. It melts at 97°. Sulphuric acid acts rapidly upon it, changing it to a blackish colour. The other strong acids are slow in their effect, but finally oxydize it, rendering it harder and yellowish. With alkalies it forms soaps. Water, alcohol and ether do not dissolve it. Chevreul separated lard into two parts, one solid at common temperatures, which he calls *stearin*; the other fluid, and named *elaïn*. Like other animal oils, lard is highly nutritive; but when taken in larger quantities than the stomach can fully digest, it proves cathartic. It is, however, more digestible than is commonly supposed, and it is worthy of notice, that salt pork agrees with some dyspeptics, who cannot take other animal food.

ÆTHER SULPHURICUS.

Sulphuric Ether.

The name of *ethers* is applied to an order of compound fluids, produced by the action of strong acids upon alcohol, and possessing peculiar chemical and medicinal properties. They differ from each other in various physical respects, but for medicinal use, the sulphuric ether has been selected as a representative of the rest. The formula of the United States Pharmacopœia for preparing this ether is the same with that of the London Collège. It contains a minute portion of sulphurous acid, with some water and alcohol. From the acid and part of

the water it may be separated by rectification from potass, as directed in the list of Corrigenda.

The specific gravity of the ether produced by the first distillation directed in the Pharmacopœia is $\cdot 768$; that of the second distillation, after a new portion of alcohol is added, is $\cdot 807$; and that of the mixture of these two $\cdot 788$. When rectified like that of the British colleges, it has a gravity of from $\cdot 732$ to $\cdot 725$, but still contains water and alcohol, since ether has been obtained of a gravity as low as $\cdot 632$.

QUALITIES. Sulphuric ether has a strong, penetrating odour, and a pungent taste. It is limpid and colourless, and highly volatile, evaporating immediately when poured into the hand, producing a sensation of cold. In the open air, it boils at 98° ; and in vacuo, at a temperature below the freezing point of water. At 46° below zero, it congeals in brilliant, transparent plates. It is highly inflammable, its vapour taking fire at the approach of any ignited body, so that its management requires caution in this respect. It *unites* with ten parts of water, and with any amount of alcohol. It dissolves resins, camphor, volatile oils, bitumens, extractive, wax and balsams. It takes up one-twentieth of its weight of sulphur.

Uses. Ether is stimulant, narcotic and antispasmodic, producing effects analogous to those of alcohol, but in a greater degree. It is employed as a cordial in diseases of low debility, and as an antispasmodic in hysteria, tetanus and cramp of the stomach; also to check vomiting and allay sea-sickness. It possesses apparently greater power than any other substance in discharging flatulence from the stomach, but it must be remembered that a great portion of the vapour discharged is the ether itself. Externally applied to the exposed surface of the body, it produces great cold by its evaporation, and has been advantageously employed in the reduction of hernia, and the relief of head-ache.

EXHIBITION. From half a fluidrachm to two fluidrachms may be diffused in any mild vehicle for a *dose*, care being taken that the ether be not wasted by unnecessary exposure to the air, or by the vehicle being too hot.

OLEUM ÆTHEREUM.*Ethereal Oil.*

This is a thick, yellow, oily matter, less volatile than ether, and with respect to the composition of which chemists are not agreed. It is *soluble* in both alcohol and ether, but insoluble in water. It is used in forming the compound spirit of sulphuric ether.

SPIRITUS ÆTHERIS SULPHURICI.*Spirit of Sulphuric Ether.*

This combination of ether with twice its quantity of alcohol possesses the properties, which are common to the two constituents, in an intermediate degree. Its *dose* is from one to three fluidrachms.

SPIRITUS ÆTHERIS SULPHURICI COMPOSITUS.*Compound Spirit of Sulphuric Ether. Formerly Hoffmann's Anodyne Liquor.*

This closely resembles the preparation of Hoffmann, and like that is stimulant, anodyne and antispasmodic. It is useful in hysteria, and particularly so in procuring sleep for nervous females. The *dose* is one or two fluidrachms.

Hoffmann employed his *liquor anodynus* as a palliative in calculous disorders, gout, rheumatism, asthma, and various spasmodic affections.

SPIRITUS ÆTHERIS NITROSI.

Spirit of Nitrous Ether.

The small quantity of acid employed in making this preparation, allows the mixture to be effected without any violent action, or the production of much heat, provided the acid is added slowly and at intervals. The spirit distilled off has a fragrant odour, and a pungent acidulous taste, with a specific gravity of .850. It combines with both water and alcohol.

USES. This medicine, under the name of *Sweet spirits of nitre*, has long been known as an antispasmodic, diuretic and diaphoretic. It is given in dropsy, and is commonly accounted refrigerant in febrile diseases; but my own observations have led me to regard it as too stimulating and heating to be given in any of the active forms of fever. A common dose is from twenty to forty minims.

ALCOHOL.

Alcohol.

ORIGIN. All vegetable fluids, both natural and factitious, which hold sugar in solution, may produce alcohol, by passing through the vinous fermentation. The vinous liquids most commonly known, are those obtained by fermenting the juices of sweet fruits and stems, or the decoctions of farinaceous grains rendered saccharine by malting. When these liquids are distilled, the result is an ardent spirit. Ardent spirits are composed of alcohol, water, and a small portion of volatile oil, the taste of which distinguishes one spirit from another. Brandy is obtained by the distillation of wine, and sometimes from peaches,

apples, &c. Rum is distilled from the juice of the sugar-cane, or from its uncrystallized portion, called molasses. Whiskey and gin are distilled from rye and other grains, and arrack from rice. Alcohol, nearly pure, may be obtained from any of these, by repeated distillation, till about one half comes over, adding before the last distillation, a quantity of subcarbonate of potass, which retains the water by its strong affinity, while the alcohol passes over. It is easily obtained of the specific gravity of $\cdot 835$, and has been procured as low as $\cdot 791$; but has probably never been wholly freed from water.

QUALITIES. Alcohol, from whatever source it is obtained, is a transparent, colourless liquid, of a fragrant odour and pungent taste. It boils at 176° , and is not frozen by any method hitherto communicated to the world. It is highly combustible, and burns away with a blue flame, leaving no residuum. It combines with the acids, the pure fixed alkalies, and sparingly with sulphur and phosphorus. It is the proper solvent of volatile oils, camphor, resins and balsams, which may be precipitated by water. In common with water, it dissolves sugar, extract tannin, soaps, and many of the metallic and deliquescent salts. It does not dissolve some of the substances, which are most soluble in water, such as gum, fæcula, and the alkaline carbonates.

USES. Officinal alcohol is not much used in medicine, being too highly stimulating, heating and intoxicating, for common purposes. Its principal use is that of a pharmaceutical solvent, and in certain cases, of an external application to the body. Employed in the latter way, it is highly useful in some erysipelatous affections, particularly erysipelas infantilis, which disease I have found to disappear more rapidly under its use than from any other application I have tried. Common proof spirits, which derive their efficacy from the alcohol they contain, are strong diffusible stimulants, and are sometimes used medicinally in cases of debility, low fevers, &c. as substitutes for wine, when this cannot be procured, or when it disagrees with the patient. They are even to be preferred to wine in the case of habitually intemperate persons, whose stomachs have become insensible to any half-way stimulus. Spirits, diluted with water,

agree with dyspeptic patients better than most other drinks ; but their use should be kept within the strictest bounds, and the quantity not suffered to increase. Many patients have become gradually and imperceptibly intemperate under the sanction and guidance of a physician.

EXHIBITION. Alcohol is seldom given in its pure state. In the low stage of typhoid fevers, a fluidrachm of proof spirit diluted with water forms a substitute for a table spoonful of wine ; which see.

ALCOHOL DILUTUM.

Diluted Alcohol.

Alcohol, diluted with an equal weight of water, is preferred to proof spirit for the preparation of tinctures and other pharmaceutical purposes, being uniform in its strength and sensible properties. It is the best solvent for vegetables containing a variety of heterogeneous constituents. Diluted alcohol, as it is now corrected, may be made by mixing equal weights of its constituents ; or near enough, by mixing ten gallons of alcohol with eight gallons and three pints of water.

ALETRIS.

Star Grass.

The root of the *Aletris farinosa*, a native plant, is a resinous bitter of the most intense and permanent kind. It communicates its properties to alcohol better than to water. It is employed in small doses as a tonic ; but if given to a larger amount than twelve or fifteen grains, it has sometimes produced narcotic symptoms. Its chief use is as a stomachic, in small doses.

ALLIUM.

Garlic.

Garlic and other plants of its genus have a well known offensive odour and taste, which, however, in a weakened state, render them an agreeable condiment with food. These qualities depend on a thick, acrid, yellowish, volatile oil, which may be separated by distillation, leaving the bulbs nearly inert. Garlic is stimulant, expectorant and diuretic. It is given in the form of syrup in chronic coughs, and the secondary stages of pneumonia; also, in combination with other medicines, in dropsy. Externally the bruised bulbs, in the form of a poultice, act as rubefacients.

ALOE.

Aloes.

ORIGIN. Most species of the genus *Aloe* are bitter and purgative, and the drug is no doubt obtained from a variety of these plants. Many tropical countries now produce it, and the old names of Socotrine and Barbadoes or Hepatic aloes, are kept up rather as distinctive of the quality, than as indicating the real origin of the drug. Very little, if any of the aloes now imported into the United States, ever comes from the island of Socotora; while India, and more especially the Cape of Good Hope, furnish the principal supply of our markets. The latter place is, as it were, the nursery and native country of this race of plants; and the most valuable species, the *Aloe spicata*, grows there in abundance, and furnishes the best samples of the article which are met with among us. It is said, however, that the sorts most nearly resembling the original Socotrine aloes, are

those brought from Mocha and Smyrna. Besides the species above named, very good aloes are obtained from the *Aloe perfoliata*, *A. vulgaris*, *A. linguæformis*, &c.

The officinal drug is the inspissated juice of one or more of these plants. It is prepared in various ways, and its goodness is no doubt influenced by the mode of preparation. At Socotora the juice is expressed from the leaves, and evaporated to a proper consistence in the sun's heat, in flat vessels. At the Cape it is pressed out and evaporated by boiling. In some parts of the West Indies a decoction is made by enclosing the sliced leaves in a basket or net, and suspending them in large boilers of water, until the liquor becomes black; after which, the leaves are removed, and the decoction inspissated, the scum being from time to time removed.

QUALITIES. The Socotrine aloes have an intensely bitter taste, and a strong, heavy and somewhat aromatic smell. Their colour is a dark red or brown, with a glossy, vitreous fracture. The edges are translucent, and the powder of a bright yellow. The other sorts are less bright in colour, and less glossy in their surface. The odour is also more disagreeable. The name of Hepatic aloes was taken from the resemblance of their colour to that of the human liver. Aloes are commonly viewed as a gum resin. Braconnot has represented them as consisting chiefly of a peculiar substance, to which he gives the name of *resinous bitter principle*. Boiling water *dissolves* the greater portion of aloes which are pure, but deposits a part on cooling. Diluted alcohol, or proof spirit, is their best *solvent*. The alkalies facilitate the solution in the stomach, and cause them to operate more mildly and equally on the intestines. The Socotrine, Bombay and Cape aloes, contain a portion of volatile oil, which is not found in the Barbadoes.

USES AND EXHIBITION. Aloes are a stimulating cathartic, extensively used, both pure and in combination. On account of their bitterness, they are best administered in pills; and these being slow of solution in the stomach, are supposed to pass unchanged into the intestines, and to exert their stimulus, more than other cathartics, on the colon and rectum. They are given in *doses*

of ten or fifteen grains, and though sometimes slow in their operation, they are generally sure. To obviate costiveness, smaller doses are sufficient, except in the case of individuals of sedentary life, who have acquired the pernicious habit of depending on cathartic medicines for relief, and who of course require a gradually increasing stimulus. Aloes act specifically on the uterus, and form a valuable emmenagogue. They are contra-indicated in hemorrhoids and menorrhagia.

ALUMEN.

Alum.

ORIGIN. It is found native in Solfaterra and elsewhere, in connexion with argillaceous earths and stones, from which it effloresces, or is extracted by lixiviation. But it is more frequently obtained from schistose pyritic clays, called alum ores, which do not afford it on being first taken from the earth, but on being calcined, the sulphur is converted into acid, which combines with the earthy and alkaline bases, on the addition of moisture, and affords alum. In the United States alum has been found in various localities.

QUALITIES. The form of its crystals is octahedral. Its taste is sweetish, acidulous and astringent. It is insoluble in alcohol. A fluidounce of cold water, or half the quantity of boiling water, *dissolves* thirty grains. Alum consists of alumina, with a portion of potass or ammonia, combined with an excess of sulphuric acid.

USES. It is sometimes useful, as an astringent, in discharges attended with a low pulse, but should not be relied on to the exclusion of more active remedies. In large doses it is cathartic.

EXHIBITION. Ten grains dissolved in water form a *dose*. A saturated solution is a useful gargle in sore throats and aphthæ, and a styptic in hemorrhage. Alum whey is made by coagulating a pint of milk with two drachms of alum, of which a wine glass

full may be taken at a time in diarrhœa, &c. The curd forms a convenient astringent poultice. Alum is decomposed by alkalies and many of their salts; also by gallic acid. Hence Dr. Paris observes, that the compound powders made of alum with galls or kino, are weaker than either of their ingredients.

ALUMEN EXSICCATUM.

Dried Alum.

Dried or “burnt” alum, having lost its water of crystallization, becomes stronger than before, and is used as a mild escharotic, to repress exuberant granulations in ulcers.

AMMONIA.

Ammonia.

Ammonia, otherwise called *volatile alkali*, is a gaseous fluid, extremely pungent and acrid, changing vegetable blues to a green, incapable of supporting combustion, rapidly absorbed by water, which takes up 670 times its volume, and is increased in bulk, but diminished in specific gravity. It combines with acids forming salts, and dissolves sulphur and phosphorus. Ammonia consists, according to Henry, of 26 parts of nitrogen to 74 of hydrogen by bulk; or, of 19.64 of hydrogen to 80.36 of nitrogen by weight. Water and alcohol, impregnated with this gas, are used in medicine.

AMMONIÆ MURIAS.

Muriate of Ammonia, called Sal Ammoniac.

ORIGIN. This salt was originally brought from Egypt, and derived its name from the temple of Jupiter Ammon. It is procured in that country by subliming the soot of fuel formed by the excrements of grazing animals. It is now manufactured in Europe from a sulphate of ammonia obtained by maceration from coal soot, or formed from gypsum with an alkaline liquor distilled from bones or other animal substances. This sulphate of ammonia is mixed with muriate of soda, and exposed to heat. A mutual decomposition takes place, by which sulphate of soda remains at the bottom of the vessel, while muriate of ammonia sublimes, and is collected at the top. It is sometimes found native, in small quantities, near volcanoes.

QUALITIES. It usually comes in white, crystalline, concave masses, with a striated fracture, and difficult to pulverize. The taste is acrid, saltish and bitter. It is *soluble* in an equal weight of boiling water, and in three or four times its weight of cold water, producing a considerable reduction of temperature during its solution. It is also dissolved in less than five times its weight of alcohol. On the application of heat it wholly sublimes, without melting, or altering its nature. This affords one of the best tests of its purity.

USES. Muriate of ammonia was formerly employed as an internal medicine by Hoffman and others, in intermittents, &c. in doses of one or two drachms. It has now gone into disuse, and is only employed externally as a refrigerant and discutient. It cannot be given with safety, as an internal remedy, when any fixed alkali or alkaline earth is present, which, by combining with its acid, may liberate the ammonia in a caustic form.

EXHIBITION. Dissolved in water, in the proportion of an ounce to a pint, it forms a useful lotion in external inflamma-

tions, particularly of the mammæ. A mild stimulating plaster has been formed from *soap* 3i, *lead plaster* 3ii, melted and mixed with muriate of ammonia 3ss. A slow decomposition takes place, by which gaseous ammonia is liberated and acts upon the skin. The plaster must be renewed as often as it becomes inert.

AQUA AMMONIÆ.

Water of Ammonia.

This article consists of water strongly impregnated with pure ammonia, which passes over in distillation, when muriate is decomposed by the superior affinity of lime.

QUALITIES. Water of ammonia, or *liquid ammonia*, is a colourless fluid, of a strong, pungent odour with an extremely acrid taste, and inflames the skin. It attracts carbonic acid rapidly from the atmosphere, so that it should be kept carefully stopped. It dissolves many of the metallic oxides, and unites with all the acids without effervescence, forming salts.

USES. It is a strong, cordial stimulant, familiarly known, in common with some similar preparations, under the names of *hartshorn* and *volatile drops*. It is peculiarly useful in syncope, hysteria, and nervous head-ache. By its alkaline property it neutralizes acids in the stomach, at the same time that it communicates vigour to that organ. Hence it is one of the best palliatives in dyspepsia. Externally applied, as in the *liniment of ammonia*, it is a most speedy and powerful rubefacient.

EXHIBITION. From ten to twenty minims may be taken in a wine glass of water, which should not be too warm, or long exposed. Acids, metallic salts and alum are chemically incompatible with it. It loses its strength when kept long in corked phials.

ALCOHOL AMMONIATUM.

Ammoniated Alcohol.

This is a strong preparation of ammonia. The United States Pharmacopœia employs somewhat more alcohol in its formation than the Edinburgh, and limits the quantity drawn off to a pint and a half. Ammoniated alcohol agrees, in its sensible and medicinal effects, with water of ammonia, and is chiefly used in making ammoniated tinctures.

AMMONIÆ SUBCARBONAS.

Subcarbonate of Ammonia.

This salt is produced by a double decomposition of the substances employed. Muriate of lime is formed and remains in the retort, while subcarbonate of ammonia comes over and concretes on the sides of the receiver.

QUALITIES. It has the peculiar pungent odour of ammonia, and a slightly acrid, yet cooling taste. It is usually a white, semitransparent mass, with a striated fracture, and a specific gravity of .966. When pure, it is totally volatilized by a moderate heat. It is *soluble* in less than three parts of cold water, and in an equal weight of warm water ; but is insoluble in alcohol. It changes vegetable blues to green, and is therefore a *sub-carbonate*.* In the air it effloresces, and loses its pungent odour.

* This salt is styled *subcarbonate* of ammonia by the present London and Edinburgh Pharmacopœias, and is now corrected in the American formula derived from them. This salt and the inodorous carbonate have been examined by Mr. Phillips and Dr. Ure, and denominated *carbonate* and *bicarbonate*. But there is an obvious propriety, for practical purposes, in denominating as *sub-salts* those which are not saturated with acid, independently of the advantage of community of language among pharmacopœias.

USES. Under the name of *volatile salt*, this article is well known as a common stimulant, antispasmodic and antacid. Its medical character depends on its alkali, and is essentially the same with that of water of ammonia. From its solid form, it is more conveniently kept in bottles as smelling salts in syncope and hysteria. Our druggists prepare an extemporaneous substitute for this purpose, by mixing muriate of ammonia and subcarbonate of potass, and moistening them with a few drops of water of ammonia. A slow decomposition takes place, and evolves for a long time a powerful odour of ammonia.

EXHIBITION. From five to twenty grains form a *dose*, in pills or solution. Thirty grains produce vomiting. Acids are incompatible with it, since they neutralize the ammonia. Fixed alkalies, lime, &c. increase its activity by abstracting its carbonic acid.

AQUA AMMONIÆ SUBCARBONATIS.

Water of Subcarbonate of Ammonia.

This is a superfluous preparation, being more costly and less active, than the *water of ammonia*, with which it otherwise agrees.

AMMONIÆ ACETAS LIQUIDUS.

Liquid Acetate of Ammonia, commonly called Spirit of Mindererus.

This liquid is a solution of acetate of ammonia in water, with carbonic acid and a minute portion of other substances derived from the vinegar. It has a saline and rather disagreeable taste. It is much esteemed as a cooling diaphoretic in febrile diseases,

though it is apt to pass off by the kidneys, if the skin be kept cool.

EXHIBITION. From a quarter to half of a fluidounce may be given once in three hours. Fixed alkalies, magnesia, &c. decompose it, and convert it from a cooling into a stimulating medicine.

AMMONIÆ HYDROSULPHURETUM.

Hydrosulphuret of Ammonia.

Hydrosulphuret of ammonia is a liquid of a dark green colour, a fetid odour, and a pungent, disagreeable taste. It has the character of a powerful sedative, lessening the action of the circulating system, impairing the appetite and digestion, and bringing on dizziness, nausea and vomiting. It has been principally applied to the treatment of diabetes, with a view of diminishing the morbid appetite and powerful action of the digestive organs, which sometimes attend that disease.

EXHIBITION. Five or six minims may be given in water three times a day, and gradually increased until nausea or vertigo occur. Acids decompose this medicine.

AMMONIACUM.

Ammoniacum.

ORIGIN. The ancients represented this drug as the product of an umbelliferous plant growing in Lybia. Mr. Jackson, in his *Morocco*, p. 82, has given an imperfect plate of it and description, under the name of *feshook*, from which it appears that it is of the umbellate order. Willdenow succeeded in raising a plant from seed found among the gum. It proved a new species

of *Heracleum*, to which he gave the name of *gummiferum*. He did not, however, procure any ammoniacum from his plant, and it does not agree with Jackson's drawing. Ammoniacum is a gum resin produced by the concretion of the juice. The purest sort is brought from the East Indies. The African is often mixed with red earth.

QUALITIES. It comes in irregular, yellowish, brittle masses; whitish and vitreous within. The taste is a nauseous bitter sweet. Its heterogenous nature prevents it from being soluble in any one menstruum; but water, by dissolving the gum, is able to suspend the resin in the form of emulsion.

USES. Its powers are not of the most active kind, yet it is considered a useful expectorant in pulmonary complaints not attended with inflammation of the cellular membrane.

EXHIBITION. The best form is that of the *ammoniacum mixture*, which see. In substance a *dose* is from ten to thirty grains in pills made with soap.



AMYGDALA.

Almond.

The almond tree is a native of Asia, but cultivated in the south of Europe and the Barbary states. The sweet and bitter almonds are varieties only distinguishable from each other by the taste. The best kind of the former are the Jordan almonds, brought from Malaga. These kernels contain more than half their weight of oil, and the residue is chiefly albumen, with some sugar and gum. They are simply nutritious and demulcent, and form a useful vehicle for other medicines. They are blanched by infusing them in hot water and rubbing off the skins. Bitter almonds contain prussic acid, and their distilled water is poisonous in a certain degree, although in the fruit its combination and small quantity render it nearly inactive.

AMYGDALÆ OLEUM.

Oil of Almonds.

This is the most grateful to the taste of all the common fixed oils, and should be made by bruising the almonds to a pulp, and expressing the oil without heat. Its taste and qualities are the same, whether it is procured from sweet or bitter almonds. When fresh prepared, it is bland, sweetish and inodorous. A great portion, however, of the oil kept in the shops is rancid from age. Almond oil in its effects is demulcent, sheathing and nutritive. The French syrup, called *Orgeat*, is a solution of sugar in almond oil, and forms with water an extemporaneous and very grateful emulsion.

ANGUSTURA.

Angustura.

ORIGIN. This bark was first imported into Europe less than half a century ago, and its origin was unknown until since the travels of Humboldt and Bonpland in South America. These naturalists discovered the tree which produces it to belong to a new genus, which they called *Casperia*. Willdenow soon after published a monograph of the tree, giving it the appropriate name of *Bonplandia trifoliata*, which name is now generally received, and is adopted by Humboldt in the splendid work, the *Plantæ Equinoxiales*, where a figure is published. It is closely allied to the genus *Quassia*.

QUALITIES. This bark comes in pieces of moderate size, of a brownish colour, and covered with a thin whitish cuticle on the outside. It breaks with a short resinous fracture, and has a strong bitter taste combined with a slight aromatic flavour and

pungency. The powder, triturated with lime or magnesia, gives a smell of ammonia. Its soluble portions are resin, a resinous extractive, cinchonin, carbonate of ammonia, and a whitish essential oil. Diluted alcohol, or proof spirit, is found to be its most perfect *solvent*.

USES. It is tonic and stimulant, without astringency; hence it can be taken by many persons who are oppressed by the Peruvian bark, and furnishes a useful substitute in such cases. It aids the digestion, and expels flatulence, and may be applied to any of those cases in which vegetable bitters are indicated. It was first introduced as a febrifuge, but in intermittents it is found inferior to the cinchona, and in an inflammatory diathesis it is too heating.

EXHIBITION. Of the powder, from five to twenty grains are a *dose*, to be taken in syrup, milk or wine, three times a day as a tonic. This form is better than the infusion or tincture. Many of the metallic salts, the strong acids and alkalies, occasion precipitates from its solutions, and have therefore been supposed incompatible with its full action.

ADULTERATION. A spurious bark, that of the *Brucea anti-dysenterica*, has sometimes been introduced into the markets, under the name of Angustura. It is characterized by its cuticle being covered with a substance resembling rust of iron. This, if agitated with diluted muriatic acid, assumes a bright green colour, and if prussiate of potass be added, a blue colour takes place. This bark is poisonous; and a vegetable alkali, *Brucea* or *Bruceine*, has been extracted from it.

ANGELICA.

Angelica.

An American species of angelica is substituted for the European one of the Edinburgh Pharmacopœia. It is a tall, umbellate plant, five or six feet high, with large hollow stalks, growing in

wet places, and differing from most other umbellate aquatics in having no poisonous property, at least in moderate quantities. Its medicinal qualities appear to reside in a volatile oil. Both the taste and smell of this plant are highly agreeable, resembling those of the European angelica, which Mr. Thompson considers "the most elegant aromatic of northern growth." The root, stalks and seeds are employed as tonics and carminatives, in the *dose* of one or two scruples.

ANISUM.

Anise.

The *Pimpinella anisum* is an annual umbelliferous plant of the south of Europe, easily susceptible of cultivation in the United States. The seeds have a grateful, aromatic, sweetish taste, residing in a yellowish, volatile oil, which concretes at 50°. This oil is the seat of their activity. Anise is used in flatulent pains, particularly of infants. It is the basis of a popular spirituous cordial.

ANTHEMIS.

Chamomile.

Common chamomile is native in England, and on account of the great consumption of its flowers, it would reward cultivation on a large scale in the United States. It is perennial, and will grow well in poor, sandy soils. All parts of the plant might properly be converted to medical use, though the flowers are the part made officinal, and of these the single ones, known by their yellow disc or centre, are somewhat strongest in their sensible qualities. The taste of chamomile is bitter and aromatic, and its active qualities reside chiefly in extractive matter and essential oil. Infusion in water extracts the former, and detains a consid-

erable portion of the latter. Taken cold, this infusion is serviceable as a tonic in loss of appetite, chlorosis, &c. It is an antispasmodic, well suited to the nervous debility of females. Taken warm in larger quantities it is nauseating, and is commonly employed to aid the operation of emetics. Probably any bitter infusion would do as well. The same remark may apply to the use of chamomile in external fomentations and poultices.

ANTIMONIUM.

Antimony.

Pure metallic antimony is introduced into the *Materia Medica*, because it furnishes the material employed in the American formula for tartar emetic. In a medical point of view, this metal is wholly inert, unless it meets with an acid in the stomach, in which case it may form an operative compound. It is obtained from the sulphuret of antimony, by heating it to ignition in a crucible with iron filings, which attract the sulphur, while the antimony is melted; or by roasting the sulphuret and exposing the residue with black flux to a red heat. Antimony is of a brilliant blueish white, foliated and brittle, with a specific gravity about 6.7, melting at 810° , and sublimed unchanged at a high heat.

Although metallic antimony does not act as a medicine, it is the basis of many efficient compounds, and in common language its name is employed to represent some of the most active of these. The emetic and cathartic substances called antimonials, have been known as internal medicines for several centuries, having always been recognized as powerful, and sometimes as poisonous substances. In 1566 the use of antimony was prohibited in France by an edict of Parliament, and in 1609 one Besnier was expelled from the medical faculty for having given it to his patients. The prohibitory decree against antimony continued in force for nearly a century, when it was repealed; but was soon

followed by another decree forbidding its use by any but doctors of the faculty. During the early part of the medical warfare respecting it, a work in High Dutch, called the *Triumphwagen*, or Triumphal Chariot of Antimony, by Basil Valentine, appears to have been instrumental in directing public opinion in its favour. The story from which the name of the metal is taken,* and by which Basil Valentine is said to have fattened his pigs, and killed his brother monks with the same medicine, is more amusing than probable. In modern practice the action of antimony is principally known through the antimonium tartarizatum, which see. Indeed the other preparations, into which antimony has been tortured, might mostly be dispensed with, without important loss to the *Materia Medica*.

ANTIMONII SULPHURETUM.

Sulphuret of Antimony.

This is the common *crude antimony* of commerce, and the source of all the preparations used in medicine. It is the grey ore of the metal, separated from its earthy impurities by fusion at a low red heat, and afterwards cast in moulds. This ore is found in most countries of Europe, and also occurs in Connecticut, Massachusetts, Virginia and Louisiana. The fused sulphuret has, when broken, a peculiar striated or spicular appearance, and a steelly metallic lustre. It stains the fingers when rubbed, tarnishes by long exposure to the air, and is insoluble in water. It is entirely volatile at a red heat. If it is adulterated with lead, it acquires a foliated instead of a striated texture, and the whole of it cannot be volatilized; if with arsenic, it emits the odour of that metal, when thrown upon live coals, and is indicated by the other tests. Sulphuret of antimony does not deserve to be employed in medicine, being itself a rather inert substance, subject however to be rendered violently active by accidental combinations, and often contaminated with noxious minerals. The

* *Antimonium*, from *avti*, against; *μοναχος*, monk.

prepared sulphuret of antimony of the Pharmacopœia is merely this substance reduced to an impalpable powder.

ANTIMONII SULPHURETUM PRECIPITATUM.

Precipitated Sulphuret of Antimony. Formerly Golden Sulphur of Antimony.

This is a sulphuretted hydrosulphuret of oxide of antimony. It is an orange-coloured, styptic, inflammable powder, insoluble in water. In a *dose* of two or three grains, it is considered diaphoretic and expectorant, but is uncertain and little used.

ANTIMONII OXIDUM.

Oxide of Antimony. Formerly Diaphoretic Antimony.

The article inserted by this name in the list of Corrigenda was omitted, probably by oversight, in the National Pharmacopœia. It is the article which enters into the composition of pills on pages 176 and 178 of that work, under the name of oxide of antimony. On restoring it to the Pharmacopœia, it became necessary to change the name of another article called *oxide*, which is the old *crocus* of antimony, into *oxidum antimonii sulphuratum*, to preserve a distinction between two articles of very different activity.

The present article, prepared by igniting antimony with nitrate of potass, is a peroxide of antimony with potass, or, more properly, considering the metal as acidified, an *antimoniate of potass*. It was formerly known by the names of *calcined* or *diaphoretic* antimony, and is one of the weakest preparations, being given as a sudorific, in *doses* of twenty or thirty grains. It must be remembered that the *oxidum antimonii* of the London College is a protoxide, and a far more active medicine.

ANTIMONII OXIDUM SULPHURATUM.

Sulphuretted Oxide of Antimony. Formerly Crocus of Antimony.

This is the *Oxidum antimonii cum sulphure per nitratem potassæ* of the Edinburgh Pharmacopœia, a violent and uncertain medicine, chiefly used in veterinary practice. *Pharmacopœia*, page 78.

ANTIMONII OXIDUM VITRIFICATUM.

Vitrified Oxide of Antimony. Formerly Glass of Antimony.

This preparation also is uncertain and little used.

ANTIMONII OXIDUM VITRIFICATUM CUM CERA.

Vitrified Oxide of Antimony with Wax. Formerly Cerated Glass of Antimony.

This most singular preparation is a sort of *plaster* roasted to dryness, till it is of the colour of Scotch snuff, and pulverized. In *doses* of from five to twenty grains it purges, sometimes vomits, and has been given in dysentery and croup.

PULVIS ANTIMONIALIS.

Antimonial Powder. Called James's Powder.

This is nearly the *Oxidum antimonii cum phosphate calcis* of the Edinburgh College, and is an imitation of the formerly cele-

brated powders of Dr. James. It is inodorous, insipid, of a dull white colour, and insoluble in water. It is diaphoretic in *doses* of from three to eight grains, and emetic and purgative in larger ones. It had formerly very great reputation at the commencement of fevers and inflammatory affections, but it may be doubted whether it possesses any advantages which may not be derived with more certainty from tartar emetic.

ANTIMONII MURIAS.

Muriate of Antimony.

Muriate of antimony, although crystallizable, is generally a soft solid, of a yellowish white colour, very fusible, volatile at a moderate heat, and highly deliquescent. It is a violently active preparation, used only as a caustic, and less easily managed than the other caustics in common use.

ANTIMONIUM TARTARIZATUM.

Tartarized Antimony. Called Tartar Emetic.

PREPARATION. As this important medicine has nearly superseded all the other preparations of antimony, and at the present day justly stands at the head of emetics, it becomes desirable that a uniform and certain mode of preparing it of regular strength should be adopted. The London, Edinburgh, Dublin and Paris Pharmacopœias all employ different materials and processes to form this salt. The process of the American Pharmacopœia is that proposed by Mr. Phillips, and appears better calculated than those of the British colleges, to produce a pure tartarized antimony with uniformity, ease and economy. Mr. Phillips observes, that the qualities requisite in an eligible meth-

od of preparing tartar emetic are, the certainty of obtaining protoxide of antimony unmixed with peroxide or sulphuretted oxide, yet not absolutely pure, but mixed with a substance capable of preventing the crystallization of the tartrate of lime; moderate expense, and the possibility of using iron vessels, both in preparing the oxide of antimony and the tartarized antimony. In his process, adopted by the American Pharmacopœia, a subsulphate of antimony is first formed. On boiling 100 parts of this with 100 parts of cream of tartar in solution, 76 parts of the subsulphate were readily dissolved, and afforded, at the first crystallization, rather more than 90 parts of crystals of tartarized antimony, perfectly white, and unmixed with any extraneous salt. The solution, by further evaporation, furnished an additional quantity of crystals of emetic tartar, slightly incrustated with sulphate of lime, from which, however, they were completely purified by solution and repeating the crystallization. A considerable quantity of sulphate of lime was also deposited and separated during the evaporation.

Tartarized antimony has been made by the foregoing method in the United States; and used in several of our cities sufficiently to establish its character. In its operation it agrees with the best imported tartar emetic.

QUALITIES. Tartarized antimony has a white colour, and a styptic metallic taste. The primitive form of its crystals is the regular tetrahedron, though it assumes various secondary forms. The crystals effloresce slightly on exposure, and become black when thrown upon coals. It is *soluble*, according to Dr. Duncan, in fifteen times its weight of cold water, and in three times its weight of boiling water. The solution, when long kept, deposits a sediment, and is weakened in its emetic power. Sometimes this deposit takes place rapidly, in which case, according to Dr. Paris, it consists chiefly of tartrate of lime, an impurity derived from the cream of tartar. Some obscurity still exists in regard to the composition of tartar emetic. Gay Lussac has lately given an opinion, that the supertartrate of potass acts the part of a simple acid in its formation; and Dr. Ure has styled it a *cream tartrate* of antimony. Dr. Paris observes that, in the present

state of our knowledge respecting it, no name can be more appropriate than *antimonium tartarizatum*. As tartarized antimony is liable to be adulterated, it should be purchased in its crystalline form; it should be wholly soluble in water in about the proportions above-mentioned, and the solution should yield a copious gold-coloured precipitate with sulphuret of ammonia.

USES. Tartarized antimony performs the office of an active, efficient and powerful emetic. It stimulates the stomach into forcible and long continued efforts to discharge its whole contents. It inverts the action of the duodenum, and brings bile into the stomach, which continues to be thrown off, after the ingesta are evacuated. By the force of its operation it draws remote parts of the system into sympathetic action, and breaks up diseased associations, which are unconnected with the state of the stomach. It is therefore preferred in common practice to all other emetics, where the object desired is, not simply to relieve the stomach from offensive contents, but to apply active vomiting to the cure of disease. This is particularly the case at the commencement of common continued fevers, in which, when liberally administered, it does more to prevent or break up the disease at its onset than any single remedy, bloodletting sometimes excepted, which is now employed. In various local inflammations, attended with fever, and in other morbid states of the body, which call for a vigorous emetic, it stands before other medicines of its class; giving place only to sulphate of zinc, where poisons have been swallowed, and to ipecacuanha, when a forcible operation is contraindicated or unnecessary. Tartarized antimony acts apparently on the muscles concerned in vomiting, through the medium of the brain and nervous system, and operates more speedily when injected into a vein than when received into the stomach, as appears from experiments made on animals.

When tartar emetic is given in such doses as fall a little short of vomiting, it usually operates on the bowels. The surplus portion of an emetic, which is not ejected with the other contents of the stomach, frequently acts in this way. A little

tartarized antimony added to cathartic combinations greatly increases their activity.

In minute doses, frequently repeated, this medicine has a relaxing, alterative, diaphoretic and expectorant effect, diminishing the force of the circulation, abating inflammatory action, and answering, as well as assisting, the intention of depletive remedies. The stomach, by use, will bear gradually increasing doses, if repeated about once in two hours, augmented from one-eighth of a grain to two grains; though, when the quantity has become large, a sense of debility and great aversion follows the exhibition of each dose.

Applied to the surface of the body, tartarized antimony exerts an action which is somewhat specific, consisting in a pustular eruption, with frequently a dark colour of the skin, slow in healing, and accompanied with a sensation like that from the continued presence of caustic. Hence it is one of the most powerful and permanent of external stimulants, well adapted to formidable and deep seated inflammations.

EXHIBITION. Tartarized antimony is best given in the form of solution in water. For an emetic eight grains may be dissolved in as many spoonfuls of water, and of these, two may be given at first, and one repeated every twenty minutes, till the desired amount of vomiting takes place. In important and critical cases of incipient fever, a larger quantity may be given at once, since the chance of interrupting the fever, or of mitigating its character, is more than sufficient to compensate the evil of severe vomiting. An aqueous solution of four grains to the fluid-ounce is a more convenient emetic for children than the wine, from the circumstance of its having little taste; but it sometimes acts with violence. A teaspoonful or fluidrachm of this solution will commonly vomit a child two years old. Half a fluidrachm, or less, of the same solution may be given as an alterative to an adult, and repeated once in two or three hours with a gradual increase, unless purging or nausea become troublesome. Combinations of small quantities of tartarized antimony, submuriate of mercury and opium, are highly useful in various inflammatory affections. For an external stimulant, the following OINTMENT

OF TARTARIZED ANTIMONY is recommended: Take of tartarized antimony one drachm; lard one ounce. Mix. Perpetual blisters are speedily revived, when inclined to dry up, by washing them with a weak solution of tartar emetic.

APOCYNUM.

Dog's Bane.

The *Apocynum androsæmifolium* is a native lactescent plant, growing about the borders of woods and fences, and frequently denominated *Ipecac.* The root has an unpleasant and intensely bitter taste. It contains a bitter extractive matter; a red colouring matter soluble in water, but not in alcohol; a volatile oil and caoutchouc. It operates on many persons as an emetic in doses of one or two scruples, and in smaller quantities is tonic and stomachic.

AQUA.

Water.

Water is a compound of oxygen and hydrogen, in the proportion by weight of 88.24 parts of the former, to 11.76 of the latter. Its extensive solvent powers render it of great use in pharmacy. For all nicer purposes, *distilled water* should be employed; which see. For the common preparation of vegetable infusions and decoctions, spring or well water, provided it is perfectly soft, may be used. In its different natural situations, water varies very much in regard to purity, and in this respect may be considered in the following order: 1.—RAIN WATER. The water of the atmosphere, being the product of a sort of natural distillation, is more free than any natural water from foreign substances, wheth-

er it is in the form of rain, snow, hail or dew. It is found, however, to contain carbonic acid, and a minute portion of muriate of lime, and some other salts. In the neighborhood of large towns, it is contaminated by smoke and various volatile substances. 2.—**SPRING WATER.** In siliceous and gravelly soils, this is often very pure, though less so than rain water. Springs, according to their qualities, are said to be *hard* or *soft*, *sweet* or *brackish*. Hard water derives its quality principally from sulphate and carbonate of lime, with some other salts, which it holds in solution. It is unfit for washing and various culinary purposes; it coagulates soap, by abstracting the alkali from the oil, and does not soften leguminous vegetables. Soft water is free from these defects, in consequence of containing less of the saline ingredients. Brackish water has a saltish or unpleasant taste, arising, commonly, from muriate of soda, of magnesia, or of lime. Springs have this quality in the neighborhood of the sea or of salt springs. 3.—**RUNNING WATER.** The water of rivers, on account of its long exposure and agitation, has less foreign matter in solution, but more in suspension, than that of springs and wells. Hence, although turbid at first, yet, if suffered to stand till its impurities have subsided, it is often sweet and wholesome. Some rivers, contaminated with a large portion of animal and vegetable exuviae, are, nevertheless, used for all purposes by the inhabitants of their banks with impunity. Such are the waters of the Thames and the Mississippi. In mountainous countries, the streams and torrents are in a state of great purity, being composed of melted snow for a great part of the year. 4.—**WELL WATER.** This resembles spring water in its general qualities, but is much more apt to be hard, in consequence of its stagnation and slow infiltration. In boggy and alluvial countries it is often too impure for use. In populous cities wells are frequently contaminated in consequence of the near vicinity of vaults and drains. 5.—**STAGNANT WATER.** Ponds and small lakes with a sandy bottom are sometimes pure; but in general the water of ditches, bogs and muddy pools, being loaded with decomposing vegetable matter, is highly impure. Water, when kept long in casks or reservoirs, especially at sea, undergoes certain changes, acquiring

a ropy consistence, an offensive smell, and evolving carburetted hydrogen. A remedy is found in charring the inside of the casks, and a still better one, according to Perinet, in adding a little oxide of manganese to the water, and agitating it once in fifteen days.

AQUÆ MEDICATÆ.

Medicated Waters.

The above name is given in the American Pharmacopœia to a number of liquid preparations, in which water is strongly impregnated with carbonic acid, so as to become acidulous and sparkling. Water, exposed to the atmosphere, always imbibes some carbonic acid. By the aid of Nooth's apparatus, it is made to take up an additional quantity. But by the mechanical pressure of a condensing pump, water can be impregnated with several times its volume of this gas, so as to exhibit the distinct, sensible and medicinal properties of the acid. An apparatus is now manufactured in most of our cities, for pumping carbonic acid, disengaged in one vessel, into another which confines the water to be impregnated.

AQUA ACIDI CARBONICI.

Carbonic Acid Water.

This article is now extensively consumed in all our large cities under the names of *Soda Water* and *Seltzer Water*, as a grateful and salubrious beverage during the hot season. It abates thirst, assists digestion, and acts promptly upon the pores and

kidnies. It is refreshing to patients with febrile and inflammatory diseases, and, like effervescing mixtures, counteracts nausea and vomiting. That the sprightliness of this water may not be impaired by the loss of too much of its acid, it must be kept in strong close vessels in a cold place.

AQUA MAGNESIÆ SUPERCARBONATA.

Supercarbonated Magnesia Water.

When carbonate of magnesia is diffused in water, and a stream of carbonic acid introduced, a portion of the magnesia is dissolved, which on spontaneous evaporation forms a crystallized carbonate, or bi-carbonate, soluble in 48 parts of cold water. Supercarbonated magnesia water consists of this salt dissolved in water, together with an excess of carbonic acid, giving the liquid an acidulous character. It affords a pleasant form of exhibiting magnesia, the common effects of which it produces, its carbonic acid being separated in the stomach. It may be drunk ad libitum as a laxative and antilithic.

AQUA POTASSÆ SUPERCARBONATA.

Supercarbonated Potass Water.

This preparation was erroneously styled *Aqua potassæ* in the American Pharmacopœia, and is now corrected, with the other supercarbonated alkaline waters. Potass combines with carbonic acid in two proportions, both of which produce compounds not perfectly neutralized with acid. In the present preparation the alkaline character is lost in the excess of acid. The liquid is a solution of carbonate of potass with carbonic acid. It is the most agreeable form of exhibiting potass, with the efficacy of

which the carbonic acid does not at all interfere, being soon eliminated by the digestive organs. Half a pint may be taken at a dose.

AQUA SODÆ SUPERCARBONATA.

Supercarbonated Soda Water.

This resembles the preceding article in its character, but contains twice the amount of alkali. It is more pleasant to the taste. In common with carbonic acid water, it is sold under the name of *soda water*. The former is an acid, the latter an alkaline remedy.

AQUA DISTILLATA.

Distilled Water.

As common water contains principles which occasion chemical changes in various saline, acid and alkaline medicines; it is indispensable that distilled water should be used in forming solutions of these, especially where the article dissolved is of great activity and employed in a small dose.

AQUÆ DISTILLATÆ.

Distilled Waters.

Waters distilled from aromatic vegetable substances acquire the odour and taste of such substances, in consequence of the

volatile oil which they hold in solution and mixture. They are not much employed as remedies, but more as pleasant vehicles to other medicines. Those directed by the Pharmacopœia are AQUA CINNAMONI, *Cinnamon water*; AQUA MENTHÆ PIPERITÆ, *Peppermint water*; AQUA MENTHÆ VIRIDIS, *Spearmint water*; and AQUA ROSARUM, *Rose water*. The three first are pungent and carminative, but liable to vary in strength by the separation of their oil. Rose water is gently astringent, and used as a collyrium to the eyes, both alone, and in combination with astringent salts. It is best when prepared in the large way, and rectified by a second distillation.

ARALIA NUDICAULIS.

False Sarsaparilla.

The *Aralia nudicaulis*, improperly called in many parts of the country *Sarsaparilla*, grows in the edges of woods, &c. from Canada to Carolina. Its root has a strong aromatic taste and smell, like that which is found in some other plants, particularly in *Senecio aureus*. It is a mild diaphoretic and stimulant, employed in many parts of the country in infusion as a remedy for catarrh, rheumatism, and some cutaneous affections. Some other species, as *A. hispida* and *racemosa*, have similar properties.

ARALIA SPINOSA.

Angelica Tree.

The Angelica tree is a native arborescent shrub with a prickly stem, belonging to the southern states, but frequently cultivated for ornament in gardens as far north as Boston. The name *prickly ash* is often applied to it, which produces a confu-

sion among those not conversant in botany, between this tree and *Xanthoxylum*. In Mr. Elliott's Southern Botany we are informed, that a watery infusion of the bark of the fresh root is both emetic and cathartic, and that the watery extract is decidedly cathartic. The bark is pungent and heating, and is employed in the southern states for rheumatism and cutaneous affections.

ARGENTUM.

Silver.

Silver is found in the mines of various countries, sometimes pure, but more frequently combined with other metals, with sulphur, oxygen or acids. It is a brilliant white metal, insipid, inodorous and very sonorous. It is not readily oxydized, but tarnishes soon, if exposed to contact with sulphur or sulphuretted hydrogen. Its specific gravity is 10.47 and its fusing point 28° Wedgewood. When pure it has no medicinal action, but in combination with nitric acid it forms a powerful caustic. See nitrate of silver.

ARGENTI NITRAS.

Nitrate of Silver. Formerly Lunar Caustic.

PREPARATION. In preparing this substance, the acid and water employed should be of the greatest purity, otherwise a part of the silver will be lost by precipitation. To prevent loss by ebullition, a large porcelain crucible should be used, capable of containing five or six times the amount directed. According to Mr. Phillips, a smaller quantity of nitric acid than that directed is sufficient, since a fluidounce and a half is capable of dissolving 102½ grains of silver.

QUALITIES. Fused nitrate of silver is in small cylinders of a dark grey colour and crystalline fracture. It has an intensely bitter, austere metallic taste, and tinges the skin indelibly black. When free from copper it is not deliquescent. It consists of oxide of silver 70, nitric acid 30. It is *soluble* in an equal weight of cold water, and is also dissolved by alcohol. It forms the basis of common permanent ink, and of dyes for the hair.

USES. Nitrate of silver is one of the most powerful and useful caustics. It is more manageable than most other escharotics, since it does not deliquesce, and by coagulating the animal substance it is not liable to spread beyond the desired extent. It is commonly used to destroy chancres, warts, callous edges, strictures in the urethra, &c. A weak solution forms a good stimulating application for indolent ulcers.

Nitrate of silver is given internally as a tonic, astringent and alterative. It has been applied with various success to the treatment of epilepsy, chorea, worms, and angina pectoris. In incipient phthisis, leucorrhea, gonorrhea and chronic diarrhœa, it has received very decided commendations, both in Europe and this country.* It is extremely liable to decomposition, especially by muriate of soda, almost always present in the stomach; so that Dr. Ware suggests that its medicinal activity may be really owing to muriate of silver. This subject deserves further inquiry, for although the muriate is a very insoluble salt, it is not more so than calomel.

EXHIBITION. It is difficult to fix the highest safe dose of nitrate of silver, so much is this liable to be influenced by the contents of the stomach. An eighth of a grain may always be given, and ten or twelve grains have been given, with impunity. It is probable that after a common meal, little effect would be felt from a large quantity, since not only the common salts, alkalies, and strong acids, but most vegetable juices and common well water decompose it. It is proper to begin with small doses on an empty stomach, and gradually increase under the same circumstance, till griping or other inconvenience ensues. It may be

* See New England Journal, vols. vii. and viii.

dissolved in pure water and made into pills with bread just before it is used.

ANTIDOTE. A solution of common salt will immediately decompose any noxious quantity which may have been swallowed, and prevent its further corrosive action.

ARMORACIA.

Horse Radish.

Horse radish is principally used as a condiment with food. Its acrimony resides in a volatile oil of a pale yellow colour, heavy, having a sweetish and strongly acrid taste. Its medicinal action is that of a stimulant and diuretic, exciting vomiting if given in large quantities. The leaves, when green, form a common rubefacient, but lose part of their activity in drying. To insure their full effect, they should be bruised with a roller before being applied.

ARNICA.

Leopards' Bane.

The *Arnica montana* is a plant of the north of Europe and Siberia. The flowers, leaves and roots are bitter and acrid; the former slightly aromatic. They are narcotic, stimulant and diaphoretic, and in large doses emetic and cathartic. On the continent of Europe, different parts of this plant have been used in rheumatism, gout, chlorosis, intermittent fevers, and particularly in paralysis, in which the French appear to consider it an important medicine. In this country it has not been much employed. The dose is from five to ten grains.

ARUM.*Dragon Root.*

The *Arum triphyllum* is an American plant, growing in damp, shady situations, and sometimes called *Indian turnip* and *Wake robin*. The root is large and fleshy, consisting chiefly of fæcula, which it affords, without taste or smell, in the form of a white delicate powder. In its recent state this root, and in fact every part of the plant, is violently acrid and almost caustic. Applied to the tongue, or to any secreting surface, it produces an effect like that of Cayenne pepper, but far more powerful, so as to leave a permanent soreness of many hours' continuance. Its action does not readily extend through the cuticle, since the bruised root may be worn upon the skin till it becomes dry, without occasioning pain or rubefaction. The acrimony of this plant resides in a highly volatile principle, which is driven off by heat, and gradually disappears in drying. It is not communicated to water, alcohol nor oil, but may be obtained in the form of an inflammable gas or vapour, by boiling the plant under an inverted receiver filled with water.* *Arum* is too violently acrid to be a safe medicine in its recent state, though it has sometimes been given with impunity. The dried root, while it retains a slight portion of acrimony, is sometimes grated in milk and given as a carminative and diaphoretic.

ASARUM CANADENSE.*Canada Snake Root.*

This plant, called also *Wild ginger*, grows in woods and on mountains throughout the United States. Its affinity to the *Asa-*

* See American Medical Botany, vol. i. p. 56.

rum Europæum has led to a supposition that it possesses emetic powers. This however is not the case, at least in common doses. It has an agreeable aromatic taste, intermediate between that of *Aristolochia serpentaria* and ginger. The root, according to my experiments, contains a volatile oil, resin, fæcula and mucus. It is used by country practitioners, and occasionally kept in our druggists' shops, as a warm diaphoretic and stimulant; and may be given in *doses* of from one to two scruples in powder, or in infusion like that of *serpentaria*, which medicine it resembles in its properties.

ASCLEPIAS INCARNATA.

Flesh-coloured Asclepias.

This is a lactescent plant, native of the United States. Its taste is bitterish, nauseous and subacid. According to Dr. Tully of Connecticut, it is expectorant, diaphoretic and diuretic, and in large doses laxative. It is given in catarrh, asthma, rheumatism, secondary syphilis and worms. *Dose* from half a drachm to a drachm.

ASCLEPIAS SYRIACA.

Common Silk Weed.

This is a well known native plant, common by road sides, and like the former species, exuding a milky juice when broken. It has been administered in asthma and catarrh, to the amount of a drachm of the powdered root in a day. It is apparently antispasmodic and expectorant.

ASCLEPIAS TUBEROSA.*Butterfly Weed.*

This species is found from Maine to Georgia, and is readily distinguished from the preceding ones, by its bright orange-coloured flowers. The root when dry is brittle, and easily reduced to powder. Its taste is moderately bitter, and its chief soluble portions are extractive matter and fæcula. It acts medicinally as a mild diaphoretic, expectorant and subtonic. It has been much used in the United States in catarrh, bronchitis, the secondary stages of pneumonia, and in phthisis as a palliative. From some associations of this kind, it is known in many places by the name of *Pleurisy root*. It has the property of producing diaphoresis with less previous heat and excitement than attends the use of most vegetable sudorifics. Twenty or thirty grains may be given three times a day, or a gill of the infusion, prepared like that of serpentina.

ASSAFŒTIDA.*Assafetida.*

ORIGIN. The *Ferula assafætida*, from which this drug is obtained, is an umbelliferous plant growing in the mountainous provinces of the south of Persia. The root is perennial, and when fully grown attains the size of a man's leg. The juice is collected by destroying the top of the plant, and covering the root from the sun for about forty days. The earth is then removed from the top of the root, and a horizontal slice cut away. After forty-eight hours the juice which has exuded is scraped off, and another transverse section made. This operation is repeated at intervals until the juice ceases to flow. The juice is then inspissated in the sun, and exported in cases, mats or casks.

QUALITIES. It comes in irregular masses of a brownish yellow colour, containing whitish or reddish tears within. The goodness of the article is proportionate to the clearness, the number of white shining tears, and the strength of the smell. Assa-fetida is well known for its powerful and offensive odour, which in its concentrated state is universally disgusting. It is, however, essentially of the same character with that of garlic and onions, and the drug has been used in very small quantities as a condiment for food. Its chemical composition is that of a gum resin, containing about twice as much gummy matter as resin, and about ten per cent. of an highly fetid volatile oil, on which its odour depends. Its virtues are preserved by solution in alcohol or emulsion with water. Age and exposure impair its strength by dissipating its volatile oil.

USES. This disgusting medicine has enjoyed a high reputation as an antispasmodic, especially in the hysteric paroxysm of females. I am disposed to think its powers have been overrated, and have rarely found it more speedily efficacious in these cases than a variety of other medicines. Its action is stimulant, heating, and promotive of most of the excretions. Hence it is given with some benefit in chlorosis, asthma, and hooping cough, as an emmenagogue or expectorant. It is not to be used during great arterial excitement, and it may in most cases be superseded by more palatable medicines. The *dose*, in substance, is from five to twenty grains, but the tincture is a more common mode of exhibiting it.



AURANTII CORTEX.

Orange Peel.

The orange tree is a native of southern Asia, but is now cultivated in most warm countries. The juice of the fruit is gratefully sweet and acidulous, and refreshing in febrile disorders. The officinal part is the rind, which in its green state is covered with

vesicles of a fragrant volatile oil. It has likewise a good deal of bitterness, particularly in the unripe or Curracoa oranges. Orange peel is tonic and stomachic, and enters into the composition of several medicines of this class, particularly the compound tinctures of cinchona and gentian.

AURUM.

Gold.

Gold is found native sometimes in veins, sometimes disseminated in rocks or ores of other minerals, and sometimes in loose grains among the sands of alluvial countries. It is exceedingly malleable and ductile, does not alter on exposure to the air, has a specific gravity of 19.35, and melts at 32° Wedgewood. Its officinal preparation is the muriate of gold ; which see.

AURI MURIAS.

Muriate of Gold.

The preparation which bears this name in the Pharmacopœia is a muriate of gold and soda. The presence of the alkali renders the muriate of gold less active and less deliquescent than when it is pure. The triple muriate, according to M. Figuier, ought to be very homogeneous, and during its preparation, whenever a saline pellicle appears upon its surface, it should be removed with a glass implement. The drying should be finished in a glass or porcelain mortar, in a sand-bath at a moderate heat, the salt pulverized as fast as it dries with a pestle of the same material, and the bottle warmed which is to receive it.

USES. Gold has been revived in modern practice by Dr. Chrétien of Montpellier, as a remedy in the various forms of

syphilis, more effectual and more safe than mercury. He employed it with alleged success in chancres, buboes, warts, ulcers ; also in gonorrhea, scrofula, schirrus, &c. &c. The subsequent reports of M. Cullerier in France, and of different practitioners in England and the United States do not justify the sanguine expectations at first formed of it. It appears to be capable of curing syphilis in some cases, but by no means in all, nor are the apparent cures made by it always permanent. In the present state of our knowledge, it seems worthy of preservation, as an auxiliary to be resorted to in intractable cases, rather than as a remedy for common reliance.

EXHIBITION. As muriate of gold, according to Dr. Chrétien, is more powerful than corrosive sublimate, it has been used chiefly in minute quantities. By him it was employed in friction, a tenth or fifteenth part of a grain being rubbed on the gums mixed with starch or charcoal. A like quantity has also been administered internally in pills.



AVENÆ FARINA.

Oatmeal.

Willdenow assigns as the native country of the oat, the island of Juan Fernandez on the coast of Chili, where it was found growing wild by Lord Anson. It was, however, cultivated in Europe from a much earlier period, and was not improbably known to the ancients. Oats are cultivated in the United States chiefly as provender for horses. The grain, when divested of its husk, although small, is salutary and nutritious. The meal cannot be made into light or fermented bread, owing to the want of gluten, in which respect it differs from wheat and rye. Dissolved in boiling water, it forms a light and nutritive aliment for the sick, peculiarly useful as part of an antiphlogistic diet. Oatmeal gruel is directed by Dr. Cullen to be made by adding an ounce of meal to three quarts of water, which is to be placed on the fire

and stirred till it boils. It is then allowed to boil until one third of the water is consumed. The liquid is afterwards strained and suffered to stand, till, in cooling, a sediment subsides, when the clear part is poured off for use. Gruel thus made is far less acerbent and irritating, than the thick, turbid mixtures often prepared in haste for the sick.

AZEDARACH.

Azedarach.

The *Melia azedarach* is a flowering tree introduced into the southern parts of our country from the eastern continent, and commonly called *Pride of India*. The bark of the root vomits and purges, producing some narcotic symptoms if the dose be large. It is principally used as an anthelmintic, a decoction being made from four ounces of the recent root in a quart of water, boiled till it becomes of a dark colour; and half a fluidounce being given every two or three hours till it operates.

BARYTÆ SULPHAS.

Sulphate of Baryta.

This mineral, called *heavy spar*, is found in many parts of the United States, frequently in lead mines. It is known by its great specific gravity, which is nearly 4.5; its hardness, which is somewhat greater than that of crystallized carbonate of lime; and its chemical characters. It decrepitates under the blowpipe, gives a greenish tinge to the flame which has passed over it, and is converted at last into a white enamel, which in ten or twelve hours falls to powder. This enamel, applied to the tongue, produces a taste like that of rotten eggs. The mineral is of various

colours, but most frequently white. Its varieties are lamellar, columnar, radiated, fibrous, granular, compact, &c. It is introduced into the Pharmacopœia to form the basis of Muriate of baryta.

BARYTÆ MURIAS.

Muriate of Baryta.

PREPARATION. In the mode directed for preparing this article, the acid of the sulphate is decomposed by the charcoal, carbonic acid is driven off, and sulphur remains united with the baryta. The boiling water dissolves this sulphuret, and is itself partially decomposed, forming, with the sulphur, sulphuric acid and sulphuretted hydrogen, the combination of which with the remaining sulphuret, prevents its further decomposition. Lastly, the addition of muriatic acid disengages the sulphuretted hydrogen, precipitates the sulphur, and forms muriate of barytes in solution, which crystallizes on evaporation.

QUALITIES. This salt has an acrid, nauseous, bitter taste. It crystallizes in grouped quadrangular tables, bevelled on the edges, transparent, white and shining. It is *soluble* in three parts of cold water, and in somewhat more than two of hot water.

USES. Muriate of baryta is a highly energetic medicine, producing powerful effects in minute quantities. In very small doses it is said to augment perspiration and urine, and to improve the tone of the system. In large doses it occasions violent vomiting, purging, dizziness and other symptoms of poison, terminating in death. By Dr. Crawford, Hufeland, Pinel and others, it has been strongly recommended in scrofula, cutaneous diseases, syphilis, &c. while, by Pearson, Alibert and others, it is considered as a medicine in which great confidence cannot be placed for the cure of any disease. Its good effects are more frequently perceptible in scrofula than in any other malady to which it has been largely applied.

EXHIBITION. It is given in the *Liquor barytæ muriatis*; which see.

LIQUOR BARYTÆ MURIATIS.

Solution of Muriate of Baryta.

The *dose* of this solution is five drops twice a day, to be gradually increased till nausea takes place.

ANTIDOTES. When muriate of baryta has been swallowed in dangerous quantity, the soluble sulphates are recommended by Orfila as antidotes, to form a sulphate of baryta in the stomach, which is nearly inactive. Common Epsom or Glauber's salt will answer the purpose.

BELLADONNA.

Deadly Nightshade.

The *Atropa Belladonna* is not found native in the United States, though it grows wild in corresponding latitudes of Europe. A plant, which in many parts of our country is called deadly nightshade, is the *Solanum dulcamara*, a very different vegetable. The *Atropa Belladonna* has bell-shaped flowers of a brownish or dusky colour, yellow at base on the inside. The berries are of a dark purple colour. The leaves have a nauseous subacrid taste, without smell. According to Vauquelin they contain albumen, some salts of potass, and a bitter principle in which their narcotic property apparently resides. A peculiar alkali has been announced by M. Brandes, as existing in this plant, and which he calls *atropia*. It is white, shining, crystallizable in needles, insipid, little soluble in water or alcohol, and capable of neutralizing a considerable quantity of acid to form salts. It is highly powerful, and even its vapour is injurious. The whole of this plant is poisonous, producing, in large doses, intoxication, attended with thirst, nausea, insensibility of the retina, causing a

dilated pupil, constriction of the throat, coma or delirium, convulsions, and the other dangerous symptoms of narcotics. In fatal cases the stomach and bowels are found inflamed and gangrenous, and the whole body becomes swollen and highly putrescent. Belladonna, in small doses, has been tried in a great variety of chronic diseases, without obtaining a very durable reputation in any. It has been occasionally found to allay the pain of chronic rheumatism, tic douloureux, and even of cancer. In whooping cough it has been commended, but cannot prudently be given to children, owing to the difficulty of estimating in them a safe dose. Surgeons use an infusion made with two grains to a fluidounce, to dilate the pupil previously to the operation for cataract. When the dried leaves are given internally, the commencing dose is a grain, to be gradually increased till its effect on the stomach and head becomes perceptible, by nausea and vertigo.

BENZOINUM.

Benzoin.

The *Styrax benzoin*, a tree of Sumatra, produces this balsam from wounds in the bark made for the purpose of collecting it. It is imported into this country in the form of brown or whitish masses, brittle, having little taste, but a strong fragrant smell. It is composed chiefly of resin and benzoic acid, which latter may be separated by volatilization at a moderate heat. Solutions of the fixed alkalis, or lime, also separate the benzoic acid, from which they may be afterwards recovered by adding a stronger acid to the solution. Alcohol is the proper pharmaceutic solvent for this balsam. According to Mr. Brande's analysis, 100 parts of benzoin afforded 9 parts of benzoic acid, 5.5 of acidulous water, 60 of a butyraceous empyreumatic oil, 22 of charcoal, and 3.5 of carburetted hydrogen and carbonic acid. Benzoin is not much used at the present day except for preparing benzoic acid.

BISMUTHUM.

Bismuth.

This metal is white, or slightly yellow, brilliant, foliated with broad laminae, pulverizable, and moderately hard. It fuses at the low temperature of 476° Fahrenheit, and has a specific gravity of 9.82. It is found native in various parts of Europe, also combined with sulphur and oxygen. In the United States, native bismuth has been found in Connecticut. The officinal preparation of this metal is the *subnitrate* ; which see.

BISMUTHI SUBNITRAS.

Subnitrate of Bismuth. Formerly White Oxide of Bismuth.

As a small portion of nitric acid remains combined with the oxide of bismuth in this preparation, it is properly called a subnitrate. The precipitation, which takes place from the nitric solution by adding mere water, is a criterion by which bismuth is distinguished from most other metals. Subnitrate of bismuth is a fine, soft powder, of a pearly white colour, and nearly destitute of taste and smell. It changes to a dark colour on the contact of sulphuretted or carburetted hydrogen.

USES. Under the name of *magistery* of bismuth, this substance was formerly regarded as noxious to the human system. But during the last forty years it has been brought into the practice of medicine, and found to be a salutary tonic to the stomach and organs of digestion. Its use commenced in Geneva, and it has since had the testimony of some of the most distinguished physicians in France and England in its favour. It has also in this country generally satisfied the expectations formed of it. In dyspeptic complaints, especially in patients of a nervous tempera-

ment, it is found a very useful palliative, and sometimes does much towards promoting a cure. It is an important medicine in the case of persons habitually subject to cramp of the stomach, and does more to fortify that organ against the returns of the disease than perhaps any of the tonics in common use. In habitual vomiting or nausea, both from a primary affection of the stomach, and from sympathy with other parts, it frequently gives great relief. Its tonic effect appears not to be confined to the stomach, since it is found to do good in different spasmodic affections, such as palpitations and chorea. Recently it has been announced to cure intermittents.

EXHIBITION. A drachm of the bismuth, with an equal quantity of liquorice powder, divided into twelve papers, three of which are to be taken during the day, will commonly be sufficient to display the activity of the medicine. Large quantities taken at once are unsafe.

BITUMEN.

Bitumen.

Bitumen, including petroleum or rock oil, naptha, &c. is an inflammable mineral substance, resembling tar and pitch in its different states of consistence, and in its qualities and appearance. It is a stimulating sudorific and diuretic, and is given in rheumatism and some other maladies in the *dose* of half a fluidrachm.

CAJUPUTI OLEUM.

Cajuput Oil.

This oil is brought from the Molucca islands, and from some other parts of the East Indies. It is there obtained by distillation

from the leaves of a small tree, which is stated by Thunberg to be the *Melaleuca leucadendron*, but which, from specimens lately sent to England and examined by Dr. Maton and Sir J. E. Smith, appears to be a new species, to which they give the name of *M. cajuputi*. The odour of this oil resembles very much that of oil of turpentine rendered fragrant by admixture of camphor. When brought in copper flasks it has a greenish colour, which it loses on being redistilled, and becomes limpid and transparent. Its medicinal properties resemble those of the more pungent volatile oils, being highly stimulant, heating, antispasmodic and diaphoretic. It is used in hysteria, spasms of the stomach, and flatulent colic. It is a useful embrocation in chronic rheumatism, but cheaper substances of the same class do as well. When applied to the temples its vapour stimulates the eyes, on which account it has been employed in incipient gutta serena. Introduced into a carious tooth, it sometimes mitigates pain. *Dose* internally from three to six minims, on sugar.

CALAMUS.

Sweet Flag Root.

The *Acorus calamus* is found in Europe, Asia, and North America. With us it grows in wet meadows, commonly in beds or bunches. The root has a strong aromatic odour, and a bitter spicy taste. Its properties depend upon a volatile oil, and a bitter matter soluble in water. Medicinally considered, it is stimulant, heating and tonic; and is given in flatulent colic, cramp of the stomach, &c. in the *dose* of a scruple and upwards.

CALX.

Lime.

Lime is obtained sufficiently pure for medical use by burning any of the mineral or animal carbonates, such as limestone, chalk

and shells. It has a greyish white colour, a warm, acrid, alkaline taste, and is soluble in about 750 times its weight of water. Cold water is said to dissolve more than hot. When recently burnt, it is usually called *quicklime*. If water is poured upon it, it swells, cracks, emits much vapour, and grows hot, the water giving out its caloric of fluidity, and combining with the lime to form a solid *hydrate*. After this action has subsided, the lime is said to be *slaked*. Sir Humphrey Davy has shown this earth to be a metallic oxide, composed of a metal which he names *calcium*, and oxygen.—Quicklime is not much used in medicine, except as the basis of *lime water*, and in other preparations.

AQUA CALCIS.

Lime Water.

The American formula for making lime water is copied from the London, and is the only one which insures a permanently saturated solution, the water being kept standing upon the lime. The water is directed to be boiled, that it may be free from carbonic acid.

QUALITIES. Lime water is without colour and smell, changes vegetable blues to green, and has a disagreeable, styptic taste. With oils it forms an imperfect soap. If exposed to the air, it attracts carbonic acid, successive pellicles of carbonate of lime form upon the surface and subside, till by degrees the whole of the lime is precipitated. Lime water contains about three quarters of a grain in a fluidounce.

USES. It is much employed to neutralize acidity in the stomach, and is a common palliative with dyspeptic people. It is more useful when a lax state of the bowels exists, than when costiveness prevails. In common diarrhœa, both of adults and infants, it acts beneficially by its antacid and astringent powers. It possesses vermifuge properties, particularly as an injection for ascarides.

EXHIBITION. From one to four fluidounces may be given at once, either alone, or combined with milk. The acids, sulphur, alkaline carbonates, phosphates, borates, tartrates, citrates, &c. are chemically incompatible with it. The use of lime water should be occasionally omitted for a few days, as its long continued use impairs the tone of the stomach.

CALCIS CARBONAS.

Carbonate of Lime.

The *soft* carbonate of lime, or chalk, is found in many parts of Europe in beds containing numerous relics of marine animals. It is white or greyish, without taste or smell, adheres slightly to the tongue, and effervesces with strong acids.—It is employed as an absorbent and antacid, particularly for children, to whom it is suited by its insipidity. It is more apt than lime water to occasion flatulence, on account of the disengagement of its carbonic acid in the stomach. See the next article.

The *hard* carbonates of lime, including all the varieties of limestone, are among the most abundant minerals of the globe. Granular limestones or marbles occur in numerous localities throughout the United States, presenting a great variety in texture and colour. Marble is introduced into the *Materia Medica*, as a convenient material to furnish carbonic acid, and muriate of lime.

CALCIS CARBONAS PRÆPARATUS.

Prepared Carbonate of Lime.

This is chalk reduced to an impalpable powder, for exhibition. It is a substitute for the old powders of crab's eyes, oyster shells, &c. From ten to forty grains may be taken at a *dose*.

CALCIS PHOSPHAS.*Phosphate of Lime.*

The impure phosphate of lime, obtained by burning the bones of animals, is retained in the list of medicines, chiefly because it is an ingredient used in making phosphate of soda.

LIQUOR CALCIS MURIATIS.*Solution of Muriate of Lime.*

Muriate of lime, being highly soluble and deliquescent, is most conveniently kept for use in the form of solution. This liquid is colourless, with an acrid, bitter, disagreeable taste. It is recommended by various medical writers as a remedy in scrofulous and glandular diseases, in which it has sometimes appeared to produce a salutary effect. It is given in *doses* of from twenty to sixty drops three times a day, and gradually increased till it offends the stomach.

CAMPHORA.*Camphor.*

ORIGIN. Camphor exists in various aromatic vegetables, but the only ones known to produce it in sufficient quantities for the purposes of commerce, are two trees of eastern Asia, the *Laurus camphora* of China and Japan, and the *Dryobalanops camphora* of Sumatra and Borneo. The former of these is introduced by

Michaux, in his North American Sylva, as a tree susceptible of cultivation in the southern parts of the United States. Camphor is obtained by distillation from the roots and branches of this laurel. For this purpose they are cut into chips, and suspended in a net within a sort of still, the bottom of which is covered with water, and the top fitted with an earthen head containing a quantity of straw. The water is kept boiling for a long time, at the end of which the camphor is found sublimed and adhering to the surface of the straw. When sent to Europe, it is of a dark colour, and mixed with many impurities, from which it is separated by a second sublimation, in glass vessels, being previously mixed with quicklime.—The camphor tree of *Sumatra* has lately been described, and a figure published by Mr. Colebrooke in the 12th volume of the Asiatic Researches, under the name of *Dryobalanops camphora*. This tree, when young, possesses only an oil resembling camphor in its sensible properties; but as the tree grows older, the oil concretes into camphor, occupying cavities in the trunk, a foot or more in length, and several inches in thickness. The trees do not all contain camphor, and its presence is ascertained by incisions into the trunk made with an axe. Some natives, it is said, are so expert as to discover the productive trees by rapping on the outside. The trunks are cut down, chopped into logs, split, and the camphor scraped out. Trees of a good size yield from ten to twenty pounds. Various American trees and plants, which yield a volatile oil, afford also camphor, among which are *Laurus sassafras*, and *Aristolochia serpentaria*.

QUALITIES. Camphor, when purified, is a white, semi-transparent substance, somewhat unctuous to the touch and tenacious between the teeth. It has a peculiar, fragrant, penetrating odour, and a bitter, pungent taste. Its texture is crystalline, and though brittle, it is not easily reduced to powder. It is volatilized without melting at common temperatures, and a piece of it exposed to the atmosphere in summer time speedily disappears. Hence it can only be kept in close-stopped vessels. When thrown into glass cabinets, as it often is, to expel insects, it renders the glass dim by being sublimed and deposited on its sur-

face. If heat be suddenly applied, it melts at 260° . If sublimed in close vessels, it collects in hexagonal crystals at the top. It is highly inflammable, and burns till it is quite consumed, while floating on the surface of water. It is dissolved by alcohol, ether, oils and acids; and precipitated from such solutions by water. Water is capable of dissolving a minute portion. When repeatedly distilled with nitric acid, it is converted into camphoric acid.

USES. Camphor is a diffusible stimulant, narcotic and diaphoretic. In moderate doses it produces pleasant excitement, raises the strength, promotes diaphoresis, quiets irritation, spasm and pain, and brings on a tendency to sleep. Large quantities are followed by dangerous symptoms, like those of powerful narcotics. In disease it is employed to support the vital powers under the prostration of typhoid fevers, in which cases it greatly assists the effect of opium, wine or bark. It has been particularly commended where a gangrenous tendency exists, as in cynanche maligna, confluent small pox, &c. Its tendency to allay spasm makes it useful in a variety of convulsive affections. Externally applied by friction, it is much employed as a topical anodyne in rheumatic pains and a variety of local affections.

EXHIBITION. Camphor, at the present day, is not so frequently given alone, as in the form of an adjunct, to promote or correct the operation of other medicines. Hence it enters into a great variety of compositions, both officinal and extemporaneous; principally with opium, calomel, antimony, squills and volatile oils. See the *Opiated tincture of camphor*, *Tincture of soap and opium*, *Camphorated soap liniment*, &c. When given alone, it should be suspended in a good deal of liquid, as in the *Camphor mixture*, that it may not occasion pain by remaining at the upper orifice of the stomach. A medium quantity for a *dose* is from five to fifteen grains, and it cannot be given safely in larger doses than half a drachm. Forty grains have repeatedly been known to produce syncope and convulsions.

CANELLA.

Canella.

This bark is brought from the West Indies in thick, flat, or rolled pieces, remarkable for their whitish colour, and taste, resembling that of allspice. Its virtue resides in a thick, heavy, yellowish, and very pungent volatile oil, with a little bitter resinous matter. It is stimulant and heating, and is not much used, except in combination, as in the *Powder of aloes and canella*.

CANTHARIDES.

Cantharides.

NAME. The genus *Meloe* of Linnæus has been repeatedly subdivided by entomologists. The section under which the blistering fly is comprehended having received from Fabricius the name of *Lytta*, the London College have used his name, *Lytta vesicatoria*, for this insect. In France the name *Cantharis* or *Cantharide* has been applied to a like subdivision, and is sanctioned by Cuvier in his *Regne Animal*. As this is the basis of the commercial name established in most languages, the reason is obvious why it is entitled to preference before one which is as yet but partially received.

ORIGIN. The *Cantharis vesicatoria*, or Spanish fly, is found in all the southern parts of Europe, particularly in Spain and Italy, inhabiting the ash, elder, lilac, and some other trees. They are imported in the greatest quantities from Sicily and Astracan. Many are now brought to the United States by the way of St. Petersburg, in Russia. These insects are of a bright green gold colour, and when alive have a fetid smell. They are collected by shaking them from the branches into a cloth spread be-

neath the tree, and afterwards killing them with the fumes of vinegar, or of burning sulphur. They are then dried in the sun or by a stove, and packed in small chests and casks. They are to be distinguished from the *melolontha vitis*, an insect destitute of vesicating properties, which is frequently mixed with them. It resembles them in some respects, but is easily known by its more square form and black feet.

QUALITIES. These flies have a heavy, empyreumatic odour and pungent taste. The principle on which their blistering property depends, is of a very soluble nature, being extracted by water, alcohol or oil, and leaving the residue inert. They have been analyzed by various chemists with different results.

The following results were obtained by Thouvenel, who treated the entire flies with water, alcohol and ether separately, submitting them to the press : 1.—Three eighths of reddish yellow, very bitter extractive, affording by distillation an acid liquor. 2.—One tenth of concrete, waxy, green oil, having the odour of the flies, and yielding by distillation a very sharp acid, and a thick oil. 3.—One fiftieth of concrete yellow oil, apparently the colouring matter of the insect. 4.—One half of solid, parenchymatous matter. He imagines that the blistering principle resides in the green, waxy oil, and that the strangury produced by blisters is the effect of the acid obtained from this oil by distillation.

According to Beaupoil, an aqueous infusion of the flies, when exposed to the air, lets fall a yellow precipitate, exhales an ammoniacal odour, and reddens tincture of turnsole. The addition of ether or of alcohol divides it into two parts, viz. a black glutinous matter, insoluble in alcohol, and a yellowish brown, very soluble matter. The black matter blistered the skin without affecting the urinary organs; the yellow matter did not blister when applied alone, but blistered quickly when united with wax. A green matter, which he also obtained, acted under similar circumstances, but less actively.

Robiquet attempted to obtain the active principle of the flies in a separate state, and has procured a substance, to which Dr. Thompson gives the name of *cantharidin*. To obtain it, a strong decoction of cantharides is evaporated to the consistence

of syrup. This is next boiled with repeated portions of alcohol, until all the soluble parts are taken up. The alcoholic solution is then evaporated to dryness, and the solid residue agitated in a phial with sulphuric ether, for some time. The ether dissolves a portion, and upon spontaneous evaporation, deposits it in crystalline, micaceous plates mixed with yellow matter. Alcohol, poured upon the mass, will dissolve the latter and leave the former, which may be dried between folds of blotting paper. Cantharidin thus obtained is insoluble in water and cold alcohol, but soluble in boiling alcohol, ether, and particularly in oils. It acts powerfully as a vesicatory, particularly when dissolved in oil.

Blistering flies, if kept in close-stopped bottles, preserve their activity for a great length of time. Dampness causes them to putrefy, and they are often attacked and partially devoured by other insects, but without injury to the part which remains.

INTERNAL USE. Cantharides, if we except the prussic acid, are the most active substance derived from the animal kingdom, which has been introduced into medicine. If given in an improper dose, they affect not only the urinary system, bringing on strangury and bloody urine, but likewise inflame the inner surface of the alimentary canal, producing intense pain of the stomach and abdomen, vomiting, purulent stools, and often syncope, convulsions and death. These effects, in the human subject, are the unfailing consequence of a large dose; yet it appears that other animals are not all equally susceptible of the same poison. Certain insects are known to subsist upon them, and we have the authority of Professor Pallas, that the hedgehog will devour hundreds of them together with impunity. From the readiness with which these flies affect the urinary passages, they have been resorted to in medical practice, in small doses, as a direct stimulant to the bladder and organs connected with it. In incontinence of urine from paralysis of the neck of the bladder, they more frequently effect a cure than perhaps any other remedy. In dropsy they are found useful diuretics combined with squills and calomel. In gleet of long standing they have been found serviceable, and in the obstinate disease of leucorrhea they are warmly recommended by Dr. Roberton, though others have not

found them so uniformly successful. Cantharides may be given in substance in the *dose* of a grain, or in tincture in *doses* of ten or fifteen drops, to be repeated three times a day, and gradually increased until relief is produced, or symptoms of strangury or pain in the bowels make it necessary to desist.

EXTERNAL USE. Before the introduction of cantharides, various acrid substances were employed as local or external stimulants, particularly the acrid vegetables, such as the *Ranunculi* and *Euphorbiæ*. These were found uncertain in their operation, and sometimes produced ill-conditioned ulcers, which were difficult to heal. As soon as the Spanish fly became generally known, it superseded all other epispastics, being found certain in its operation, and not being followed by permanently injurious consequences. The ordinary effect of a topical application composed of flies is to redden and inflame the skin in the course of from one to four hours after its application. A free exudation of serum under the cuticle then takes place, which commonly remains fluid, but in some subjects coagulates as fast as formed. The discharge ceases in a short time after the removal of the flies, and the part speedily heals. These effects, however, are subject to variation, and the idiosyncrasy of some individuals causes blisters to act in them with greater rapidity, and to heal with more difficulty. A temporary strangury is an effect that not unfrequently follows vesication with flies.

No remedy is adapted to a wider circle of disease than vesication. Its great and most extensive use is as a counter stimulant in inflammatory and other local determinations of blood ; among which there are very few, to which blistering may not be advantageously applied. In every species of the phlegmasiæ of Cullen, and in various local complaints unattended with pyrexia, blisters are of primary importance. They are serviceable in many of the neuroses and cachexiæ ; and in the low stages of typhoid, but not malignant fevers, they often exert a beneficial stimulus. The place of their application varies with the nature of the disease. In phrenitis and apoplexy, they are applied over the whole cranium ; in ophthalmia, to the temples or behind the ears ; in cynanche, to the throat or chest ; in pneumonia, hemoptysis, and

phthisis, to the thorax; in pleurisy and hepatitis, to the affected side; in excessive vomiting, gastritis, and gastrodynia, to the pit of the stomach; in peritonitis, dysentery, puerperal fever, and diseases of the pelvic viscera, to the abdomen; in nephritis and diabetes, over the kidneys; in sciatica, to the hip; in phlegmasia dolens, to the groin and limb; in rheumatism, white swelling, &c. to the joints affected. In low typhus, they are applied to the head and nape of the neck, sometimes to the extremities. Placed on the affected part, they have been found to arrest gangrene, to relieve the inflammation which sometimes follows bleeding, and to counteract a variety of minor inflammatory actions.

It is remarkable that blisters are beneficial in diseases of the same nature with those which they themselves occasion. Thus they relieve strangury proceeding from other causes than their own application; and restrain gangrene in certain cases, while they are apt to produce it in malignant fevers, putrid sore throat, and confluent small pox.

The extent and time of blistering must be regulated by the disease and circumstances. In chronic affections the discharge may be kept up for a considerable time by the ointment of flies, or by the savin cerate. In urgent cases a succession of blisters is better than a protracted discharge from one, since a perpetual blister gradually loses its sensibility, although the discharge continues.

MANAGEMENT. Rubefaction may be at any time excited by the *Liniment of cantharides*, or the *Tincture of Cayenne pepper and cantharides*; and if either of these preparations be kept from evaporating too soon by means of dossils of lint soaked in them, or by repeated application, they vesicate quickly and certainly. But the most convenient and manageable of all epispastics is a plaster spread with the *Cerate of cantharides*, and confined by an adhesive margin. The leather should be cut larger than the intended blister, and after being thickly spread with cerate to the requisite extent, a margin half an inch in width should be covered with adhesive plaster. This last precaution effectually prevents the slipping of the blister, which otherwise is apt to defeat or exceed the intentions of the prescriber. When the blis-

ter is drawn, it may be dressed with simple cerate or mutton suet, unless a permanent discharge is required, in which case savin cerate, or that of red cedar, is to be applied. The denuding of a blistered surface by the removal of its loosened cuticle, considerably retards its healing. On the hairy part of the head the cuticle does not ordinarily rise, but may be made to discharge freely by keeping the hair wet through with the liniment or tincture before-mentioned, and, in urgent cases, by shaving the head and applying a plaster over its whole surface. Children are more quickly vesicated than adults, and blisters in them, if large or long continued, are occasionally followed by ulcerations and even by sloughing of the skin. They should therefore be removed as soon as they have drawn. When blisters continue painful and irritable, the most soothing application which I have employed is a potatoe poultice made of the potatoe scraped raw, which retains a certain narcotic or sedative property.

Strangury is so frequent a consequence of vesication with flies, that many expedients have been tried to mitigate or prevent it. Camphor, applied with the flies, has had the reputation of a preventive, but is not wholly to be relied on. Quite lately it has been asserted, that ebullition in water deprives the flies of their power to affect the urinary organs, without diminishing their vesicating property. Having made some experiments on this subject, I am apprehensive it will ultimately be found, that the powers possessed by cantharides of stimulating the skin and urinary organs are proportionate to each other, and that whatever diminishes the one must impair the other. Flies boiled for one minute lose most of their vesicating power, which is imparted, in an enfeebled state, to the water. How much it is impaired in the solution may be seen in the *Unguentum cantharidum*, one of the weakest stimulants. The best mode of avoiding strangury is to dilute freely with flaxseed tea or mucilage of gum arabic during the action of the blister, and to remove the plaster as soon as any irritation about the bladder is felt. Demulcents, oils and opiates will soon remove the symptom after it has occurred. The most speedy remedy is an opiate injection as recommended by Heberden.

CANTHARIDES VITTATÆ.

Potatoe Flies.

The *Cantharis vittata* of Olivier, called *Lytta vittata* by Fabricius, inhabits the United States and South America. It is also given by Pallas among his insects of Siberia. It feeds on different plants, but chiefly on the potatoe vine, and is easily caught in the morning and towards night. It agrees with the Spanish fly in its generic character, but is a smaller insect, having its elytra or wing cases black with a yellow stripe and margin, its head reddish-yellow, and its abdomen and legs black. This fly is found by abundant experience to possess all the vesicating powers of the European cantharis, and to exert the same effect when internally administered upon the bladder and urethra. The potatoe fly might well supersede the Spanish, were it not that its visits in different years vary greatly as to certainty and numbers. It is probable that many insects of the coleopterous class possess vesicating powers. Recently a fly possessing this quality was sent from the country to a physician in Boston. It proved to be the *Meloe proscarabæus* of Linnæus. The discovery of the epispastic property in any native insect is an object of interest. But that such insects may become extensively useful, they must be abundant and easy of collection.

CAPSICUM.

Cayenne Pepper.

Cayenne pepper is more known as a condiment than a medicine. The *Capsicum annuum* is a native of the Indies, but on account of the short time required for its growth, is easily cultivated in our gardens. Common Cayenne pepper is a mixture of the pods of several species.

QUALITIES. This article is well known for its excessively pungent and biting acrimony, exceeding that of any other article used with food. The principle on which its pungency depends is soluble in both water and alcohol, and is not dissipated by boiling. Its solutions are disturbed by various re-agents, which, however, are of no consequence in practical use. It is found to contain cinchonin, resin, mucilage, and an acrid principle, said to be alkaline. It is sometimes adulterated with red lead, to increase its weight.

USES. Capsicum is a warm, powerful stimulant, promoting digestion and obviating flatulence. Its abuse, however, undoubtedly produces visceral obstructions, and an inflammatory predisposition in the system. It is never of service to the healthy. In disease it is administered to stimulate the stomach, when in a torpid state, and to excite the nerves of the paralytic and lethargic. In the West Indies it has been employed both externally and internally in ulcerated sore throat. It is applied as a gargle in this disease and in paralysis of the tongue. Its chief use, however, is as a rubefacient to the skin, upon which it acts with great power.

EXHIBITION. The *dose* internally is from five to ten grains. The rubefacient cataplasm is made of meal and vinegar heated, and its surface covered with pulverized capsicum.

CARBO LIGNI.

Charcoal.

Charcoal is the carbonaceous part of vegetable substances obtained by exposing them to ignition till the volatile parts are dissipated, and excluding the air sufficiently to prevent their entire combustion. For medical use common charcoal may be rendered more pure by filling with it a crucible having a pierced cover, and keeping it red hot as long as a blue flame issues from

the hole in the cover. It is then to be cooled in a dry place and kept in a close-stopped bottle.

QUALITIES. Pure charcoal is insoluble in water, and absorbs air and moisture from the atmosphere when newly prepared, until its pores are filled, which were emptied by the heat. When excluded from the air, it is one of the most refractory substances known under the influence of high temperatures. It consists almost wholly of carbon, having only a small percentage of foreign substances.

USES. Charcoal is a powerful antiseptic, and corrects the fœtor of putrescent animal and vegetable substances. It is used to purify various liquids, particularly oils, mucilages, vinegar, and impure water, by filtering them through it. Having the peculiar property of counteracting offensive odours, it is advantageously employed in poultices as an application to offensive and ill-conditioned ulcers. It is particularly useful thus applied in gangrene. It acts as an absorbent and preventer of fermentation in the stomach and bowels, and corrects fœtor of the dejections, and, in some cases, of the breath. Dr. Chapman informs us, that a table spoonful taken twice a day is gently laxative. It has furthermore been represented as an efficacious auxiliary in the treatment of dysentery; and a Sicilian physician asserts that it cures intermittents.

EXHIBITION. It is only given in fine powder in some suitable vehicle. *Dose* from a scruple to a drachm. Pulverized charcoal is a common and very effectual dentifrice. Its grittiness, however, wears out the teeth, a consequence which might be inferred from the fact, that engravers use it to polish and grind down the surface of their plates.

CARDAMOMUM.

Cardamom.

The plant from which cardamom seeds are procured is a native of India. It is the *Amomum repens* of Willdenow, but has been separated by Maton, who, in the 10th volume of the Linnæan

Transactions, has made it a new genus by the name of *Elettaria*. The seeds come to us enclosed in their trilocular capsules, which they occupy in three rows. They have a penetrating and highly aromatic taste and smell, which resides wholly in a volatile oil. Medicinally viewed, they are warm stimulants and diaphoretics. Their chief use, however, is in pharmacy, to communicate a pungent and agreeable quality to various compound medicines. The husks or capsules are destitute of the aromatic property.

CAROTA.

Carrot.

The common carrot, when found wild, has a stronger odour and taste than when cultivated. Its seeds contain a pungent, volatile oil, and are considerably diuretic. The cultivated root, when boiled and reduced to a pulp, forms a mildly stimulating poultice, and has often an excellent effect in changing the condition of indolent ulcers.

CARTHAMUS.

Dyers' Saffron.

This drug remarkably illustrates the facility with which one article becomes substituted for another, when English names are used instead of technical appellations. The Carthamus cultivated here under the name of *saffron*, has in many of our cities taken the place of the *crocus* or true saffron, and is sold as such by many of our druggists. As the plants are not very different in the amount of their activity, no danger results from the change. Carthamus is moderately bitter and aromatic. Its effects are diaphoretic, and in large doses laxative. It is much consumed as

a popular remedy in measles and other exanthemata, to promote diaphoresis, and keep out the eruption. An infusion of two or three drachms in a pint of water is taken in a day. Carthamus is the basis of common *rouge*, and affords also a yellow colouring matter.

CARUM.

Caraway.

Caraway seeds are produced by the *Carum carui*, a biennial, umbelliferous plant, common in gardens. They are aromatic and carminative, and are employed to remove flatulence, and to communicate a pleasant flavour to other medicines. Their virtue depends on an essential oil.

CARYOPHYLLI.

Cloves.

ORIGIN. The *Eugenia caryophyllata*, or clove tree, is a native of the Molucca Islands. The Dutch formerly attempted to destroy all the trees except those on two or three islands, with a view of monopolizing the sales and enhancing the price. It is however now cultivated at the Isle of France, in Cayenne and in Dominica. The cloves are the unexpanded flower buds; and it is remarkable that although these are the most aromatic part of the tree, yet they lose their aroma when they are fully expanded into flowers. They begin to be produced when the trees are six years old.

QUALITIES. Good cloves have a strong, pungent, aromatic odour, and a hot, spicy, durable taste. They are of a blackish colour, about half an inch in length, and exude a little oil when pressed. The best variety of Amboyna cloves are somewhat

smaller and darker than the rest. Cloves are imported in chests ; the inferior kinds in bags. They are often adulterated by admixture of a certain portion, from which the oil has been extracted by distillation. Their properties depend chiefly on the oil and upon an acrid resin.

USES. Cloves are used extensively as a spice with food. In medicine they form an agreeable stimulant, and a corrective to other articles, especially cathartics.

CARYOPHYLLORUM OLEUM.

Oil of Cloves.

The volatile oil obtained from cloves by distillation is heavy, and nearly colourless, but becomes yellow by age. It has, in a high degree, the aroma of the clove, but is less acrid. The oil prepared by the Dutch is more acrimonious, owing, it is supposed, to a solution of some of the resin. Oil of cloves enters into various compound medicines, and is sometimes given alone to stimulate the stomach, in *doses* of two or three minims. It is likewise applied locally to carious teeth. Various plants of different botanical habit, have an odour resembling that of the clove, among which are species of *Dianthus*, *Cheiranthus*, *Canella*, &c.

CASCARILLA.

Cascarilla.

This bark is the product of the *Croton eleutheria*, a West Indian tree, called *Cluytia eleuteria* by Linnæus. It is chiefly imported from the Bahama Islands, in the form of small, brittle, quilled pieces, covered with a whitish cuticle. Its odour is strong and spicy ; its taste at first pungent, but afterwards intensely

and permanently bitter. These properties reside in a resin, a volatile oil and a bitter extract. In burning it gives out an odour resembling musk. Cascarilla is one of the best aromatic tonics, being more grateful than cinchona, and frequently conjoined with it in diseases of debility. From a quarter to half a drachm constitutes a *dose*. The preparations, in which heat is employed, lose the aroma of the bark, but retain the bitterness.

CASSIA FISTULA.

Purging Cassia.

ORIGIN. This species of Cassia is a tree found native in India and Egypt. It is cultivated in the West Indies, but the fruit raised there is said to be of an inferior quality. The fruit of the cassia tree is a *loment* or articulated pod of a cylindrical form, nearly an inch thick, and from a foot to two feet in length, having two longitudinal furrows on one side, and one on the other, and divided into numerous transverse cells, each containing one oval seed imbedded in a black pulp. The pods are said to undergo a kind of fermentation, to prepare them for keeping. The best specimens are those which are heaviest, and in which the seeds do not rattle on being shaken.

QUALITIES. Cassia pulp, or the part in which the seeds are imbedded, has a sweet, clammy and rather sickly taste. It has been analyzed by Vauquelin, according to whom it contains sugar, gelatin, gluten, mucus, and a small portion of resin, extractive, and colouring matter. Water is its most perfect solvent.

USES AND EXHIBITION. This pulp, in the *dose* of an ounce, proves laxative to the bowels, not however without flatulence and griping. Its operation is analogous to that of many other of the sweet fruits, and Dr. Cullen states, that common prunes will do quite as well. It is not much used, except in some old compounds, such as *Confection of senna*, &c.

CASSIA MARILANDICA.*American Senna.*

This is a tall plant with yellow flowers, growing in most parts of the United States. Its botanical affinity to the *Cassia senna*, probably first led to a suspicion of its cathartic powers. Its leaves abound with resin, and have also some extractive and volatile matter. An ounce of the dried leaves, infused in water, proves cathartic, and the plant, being easy of acquisition, is not unfrequently used for this purpose by country practitioners.

CASTANEA.*Chinquapin.*

The *Castanea pumila*, called chinquapin and dwarf chesnut, grows in the middle and southern parts of the United States. Its bark is astringent and tonic, and has been used with success in intermittents.

CASTOREUM.*Castor.*

ORIGIN. The common beaver of America and Europe has four oblong follicles or bags situated externally between the anus and genitals, the two uppermost of which contain a fatty substance, while the two larger are filled with an oily, viscid, strong smelling substance, which is the officinal castor. The follicles are usually dried in the sun or the smoke until the castor becomes nearly or quite solid.

QUALITIES. Genuine castor has a strong, penetrating smell, and a nauseous, bitter, acrid taste. According to Bouillon La Grange, castor contains carbonates of potass, lime and ammonia, iron, resin, a mucilaginous extractive matter, and volatile oil. The American castor is said by Laugier to contain benzoic acid.

USES. This drug is administered as an emmenagogue, as an antispasmodic to hysteric females, and in a few other cases; but its unpleasant taste, and the mediocrity of its powers, are sufficient reasons for preferring more efficacious articles. The *dose* is a scruple or somewhat less.

CATECHU.

Catechu.

ORIGIN. Formerly the name of *Terra Japonica* was applied to this drug, on the supposition that it came from Japan. It is obtained from a tree in the mountains of Hindostan, belonging to the genus *Mimosa* of Linnæus and *Acacia* of Willdenow. It is an extract made from the interior or heart-wood of the trunk, by cutting it into chips, boiling it in water, and evaporating the decoction to dryness.

QUALITIES. Two varieties of catechu are brought from Bengal and Bombay—the *pale*, which is in square cakes of a pale, brownish colour, brittle, bitterish and astringent; and the *dark*, which has a deep chocolate colour, rusty on the outside, its fracture resinous and shining, more austere than the pale, but in other respects agreeing with it. Catechu is almost wholly soluble in water or spirit. It is composed, according to Sir H. Davy, of tannin, gallic acid, extractive, mucilage, and earthy impurities.

USES. This is one of the strongest vegetable astringents, being simply and purely such. It is employed in discharges of the passive kind, or those unattended with much increased vascular action, or the presence of an irritating cause; whether of the bowels, uterus or urethra. It must be confessed, however, that

diseases requiring the use of internal astringents are less numerous, than they were formerly supposed to be. It is a good local application to the mouth in sponginess of the gums and aphthæ, and is found particularly efficacious in a relaxed state of the uvula, a piece of it being suffered to dissolve slowly on the tongue. From a scruple to a drachm forms a *dose*.

CERA.

Wax.

The *yellow wax* used in pharmacy is the honey-comb of the bee thoroughly drained and washed, and afterwards cast into cakes. From the laborious experiments of Huber, we learn that wax is a product of the bees themselves, and not collected by them from the pollen of flowers, as was formerly supposed. Vegetable wax, particularly that produced by the *Myrica cerifera*, or wax myrtle of the United States, differs considerably in its qualities from that prepared by the bees. (See American Medical Botany, Vol. III.) Beeswax melts at 142°, dissolves in boiling alcohol, ether, fixed oils and alkaline solutions. It is insoluble in water and cold alcohol. Wax is used in pharmacy as an ingredient in cerates, ointments and plasters.

White wax is the same substance deprived of its colouring matter by bleaching. To effect this, the melted wax is suffered to run through holes in the bottom of a vessel, upon the surface of a cylinder, which is kept revolving in water; by which means the wax is spread out and cooled in the form of thin laminæ or ribbands. It is then exposed to the light and air upon frames, and occasionally wet till the bleaching is completed. It is sold in the form of thin circular plates. White wax is somewhat less fusible than yellow, requiring a heat of 155°. It is a compound of carbon, hydrogen and oxygen in unknown proportions. It is sometimes adulterated with white lead to increase its weight, and sometimes by tallow. The lead may be detected by melting

the wax on the surface of water, when the lead will sink to the bottom of the vessel. Tallow may be suspected by the smell and want of translucency. White wax is used in cerates, &c. and has been given internally in dysentery, made into an emulsion, with mucilage.

CERATA.

Cerates.

Cerates derive their name from the wax which enters into their composition. They are of an intermediate consistence between ointments and plasters, and can be spread for external application without the assistance of heat.

CERATUM ARSENICI. *Cerate of Arsenic.*—This cerate is stimulating and slightly escharotic. It is applied as a dressing to cancers. It is considerably weaker than the ointments of Justamond and Arnemann, which were found useful in correcting the fætor and ameliorating the condition of cancerous and ill-conditioned ulcers. It should be spread thin on linen, and removed if it occasions any constitutional symptoms.

CERATUM CANTHARIDUM. *Cerate of Cantharides. Blistering Cerate.*—This combination of flies with adhesive materials forms a speedy and effectual blistering application, the activity of which has been proved by large experience. It resembles the *Emplastrum meloes vesicatorii* of the Edinburgh College, except that it contains a greater proportion of flies, and is prepared with oil instead of suet. See remarks on the management of blisters under the head of *Cantharides*.

CERATUM JUNIPERI VIRGINIANÆ. *Cerate of Red Cedar.*—This was first introduced on the supposition that the red cedar was identical with the savin. Being found to answer the same

purposes as the savin cerate, in keeping up the discharge of blisters intended to be perpetual, it is retained in the shops. If applied two or three times during the day, it keeps up a purulent discharge, without the inconvenience of strangury, which results from the continued use of flies. At each application the skin should be cleansed from a white coating that results from the previous discharge.

CERATUM PLUMBI SUBACETATIS LIQUIDI. *Cerate with Subacetate of Lead.*—Under the name of *Goulard's cerate*, this preparation has possessed much popularity as a sedative, cooling and desiccative application in burns and scalds, cutaneous eruptions, and ophthalmia tarsi of old people. The London name, *Ceratum plumbi compositum*, is more convenient.

CERATUM PLUMBI SUBCARBONATIS COMPOSITUM. *Cerate of Subcarbonate of Lead.*—Applicable to the same cases as the foregoing.

CERATUM RESINOSUM. *Resin Cerate.*—This is the *Unguentum resinosum* of the Edinburgh College, which, under the name of *basilicum*, has been long used as a mild stimulant and cleansing application for indolent ulcers.

CERATUM RESINOSUM COMPOSITUM. *Compound Resin Cerate.*—Under the name of “Deshler's salve,” this article has acquired popularity in some parts of the United States. It nearly resembles the preceding.

CERATUM SABINÆ. *Savin Cerate.*—The use of this cerate is to maintain a purulent discharge from blisters, without incurring the risk of strangury. It is much used for this purpose in England, while the *Cerate of red cedar* is more employed in the United States. See *Cantharides*.

CERATUM SAPONIS. *Soap Cerate.*—The efficacy of this cerate, say Mr. Thompson and Dr. Paris, depends on the acetate

of lead, which is formed in the first stage of the process. It has been properly observed, however, that the acetate of lead, thus formed, must be again decomposed by the soda of the soap, so that the lead exists either in the state of an oxide or a carbonate. This cerate was much employed and recommended by Mr. Pott. It was originally introduced as a dressing for the surface over fractured bones. Its action is sedative and cooling, at the same time that it affords some mechanical support.

CERATUM SIMPLEX. *Simple Cerate.*—This is a mild, sheathing application for excoriated and irritable surfaces.

CERATUM ZINCI CARBONATIS IMPURI. *Cerate of impure Carbonate of Zinc.*—The old *Turner's cerate*, on which this is founded, is a popular astringent for excoriated and oozing surfaces, sore nipples, &c.



CEREVISIÆ FERMENTUM.

Yeast.

Beer, and some other vegetable liquids, afford yeast during their fermentation. On account of its property, when fresh, of yielding carbonic acid in considerable quantities for some time, yeast is used to render bread light and friable. Its power of exciting fermentation depends on a thick substance, like gluten, which may be separated by filtration. Yeast is antiseptic, and has a powerful effect in correcting the fœtor of foul and gangrenous ulcers, when applied as an ingredient in poultices. It has also been given internally in low fevers, attended with offensive dejections.

CHENOPODIUM.

Wormseed.

The *Chenopodium anthelminticum* is a native plant, found in the middle and southern states, usually known by the names of *wormseed* and *Jerusalem oak*. The name wormseed is applied in Europe to the *Artemisia santonica*, a very different plant. The chenopodium is accounted a good vermifuge, especially in the lumbrici of children. The expressed juice of the whole plant is sometimes given in the dose of a table spoonful to a child two or three years old. More frequently the powdered seeds are employed, mixed with treacle or syrup. The seeds yield a volatile oil on distillation, which is prescribed in doses of six or eight drops in sugar or some suitable vehicle.

CIMICIFUGA.

Black Snake Root.

This is the root of *Actæa racemosa* of Willdenow, an American plant. According to the late Dr. Barton, a decoction of it forms a useful astringent gargle in sore throats, and also cures psora. We are told that the Indians made great use of it in rheumatism; also as an agent *ad partum accelerandum*. Dr. Tully acquaints me, that he has found it diaphoretic, diuretic and moderately tonic, forming a useful auxiliary in the treatment of acute and chronic rheumatism, and of dropsy; likewise operating very beneficially in hysteria. It is usually given in the form of decoction.

CINCHONA.

Peruvian Bark.

Although but three species of Peruvian bark are commonly recognized by name in the shops, it is obvious to an attentive observer, that these three kinds are not constant in their character, and that many different varieties find their way into our markets. Vauquelin, in his analysis of Peruvian bark, examined seventeen different varieties;* and the number of species of the genus cinchona known to botanists is already more than twenty, of which three quarters are natives of South America. A certain general resemblance pervades the whole; yet these barks are distinguishable from each other both by their sensible and chemical characters. As the kinds which originally enjoyed the greatest celebrity shall become scarce, it is not improbable that they will by degrees be superseded by others of more easy acquisition.

The cause of the first introduction of the cinchona into medical use is a subject of uncertainty. Some stories are related of the original discovery of its virtues, which partake of the fabulous.† It was selected early by the Jesuits from among the me-

* 1.—Quinquina jaune. 2.—Quinquina de Santa Fe. 3.—Quinquina gris dit superieur. 4.—Quinquina gris canelle. 5.—Quinquina rouge appelle dans commerce Q. pitton. 6.—Quinquina gris. 7.—Quinquina gris plat. 8.—Cinchona pubescens. 9.—Cinchona officinalis. 10.—Cinchona magnifolia. 11.—Quinquina pitton vrai. 12.—Quinquina de Loxa. 13.—Quinquina blanc de Santa Fe. 14.—Quinquina orange de Santa Fe. 15.—Quinquina ordinaire de Perou. 16.—Quinquina rouge de Santa Fe. 17.—Quinquina jaune de Cuenca.—*Annales de Chimie*, tome 59.

† An Indian is said to have been cured of a fever by drinking water out of a pool, into which a tree of the cinchona had fallen. Other accounts state that sick animals were cured by drinking the same weak infusion, and thus furnished the first hint to mankind of the virtues of the tree. One of the earliest patients, on whom the bark was successfully tried, was the Countess del Cinchon, wife of the viceroy of Peru, whose name has since been given to the tree.

dicinal plants of South America, as an article of commerce most likely to reward the exertions, with which they afterwards pushed its introduction in the various countries of Europe. It is remarkable that, notwithstanding the demand which has ever since existed for this bark among Europeans, it enjoys but little medicinal reputation among the inhabitants of the places where it grows. Baron Humboldt informs us, that intermittent fevers are extremely prevalent in the vallies of Catamayo, Rio Calvas and Macara; yet the native inhabitants of these regions, as well as those of Loxa, cannot be persuaded to take the cinchona; but cure themselves with an infusion of *Scoparia dulcis*, strong coffee, lemon peel, &c.

As early as 1642, medical works began to be published relative to the febrifuge powers of the Peruvian bark. The tree which produces it was not described until 1738, when the French geometrician La Condamine, who was sent into South America to measure some degrees of the meridian of Quito, availed himself of the opportunity afforded him to gain a knowledge of the tree, and to form a description, which he published in the Memoirs of the Academy of Sciences.

For some time the cinchona was supposed to be confined to Peru. It has since been found in New Grenada, and other parts of the continent of South America. Although the botanical characters of the species and varieties have been examined with great industry by Mutis, by Ruiz, Pavon and Tafalla, and lastly by Humboldt and Bonpland; yet a good deal of obscurity still prevails in regard to the species, which produce the different sorts of bark most known in commerce. It appears from Humboldt, that the trees are subject to vary so much in their leaves, that the recognition of species is somewhat difficult. In the splendid work of this scientific traveller, the *Nova Genera et Species*, M. Kunth, the learned editor, is said to have kept back a number of cinchonas from uncertainty whether they should be considered new species, or varieties of old ones. Humboldt has given the name of *Cinchona Condaminea* to the tree, which produces the finest quilled bark, and which is the species originally described by Condamine, and afterwards included by Linnæus in his *C. of-*

ficinalis. The *C. lancifolia* of Mutis, which is not very different from this, is supposed by Dr. Duncan, Dr. Powell, and others, to produce the common pale bark; others suppose it to produce the yellow. Red bark is said to come from the *C. oblongifolia*, while *C. cordifolia* yields one of the remaining varieties most common in commerce.

The *pale bark*, as it is known at the present day in commerce, is of two kinds—the quilled, which comes from Loxa, and the flat, which comes from Guanaco. The bark brought from Loxa consists of thin, singly or doubly rolled pieces four or five inches long, and scarcely a line in thickness; externally more or less rough, of a greyish colour, and partly covered with lichens; internally of a cinnamon colour. Its fracture is short and not fibrous, and its taste bitter and astringent.—The bark which is from Guanaco consists of much thicker, coarser and flatter pieces; externally of a dark brown colour, and internally of a cinnamon colour. Its fracture, smell and taste are like the Loxa bark.

The *red bark* comes in larger pieces, obviously obtained from trunks and branches much larger than the preceding. The pieces are thick and flat, though sometimes rolled. It is heavy and firm, and breaks with a short fracture. Its outer surface is rough, the interior compact and resinous, and the inmost portion fibrous, and of a brighter red than in the other species. Its powder is compared to that of Armenian bole.

The *yellow bark* comes also in large, thick pieces, flattish or partially rolled. Its outside is covered with the old cortical layers, in a rough, broken state, sometimes to nearly half its thickness. Many of the pieces, however, are deprived of this covering. Its internal colour is reddish orange, or cinnamon, and its fracture fibrous. Its taste is more bitter than that of any of the other varieties. The superior reputation of the yellow bark causes it to exceed the other sorts in price.

CHOICE OF BARK. As the sorts of cinchona described under the above names in European dispensatories are not always to be met with in the druggists' stores in the United States, at least under their proper names; it is important to know the kinds which, at this present period, actually predominate in our mar-

kets. The most common is a hard, woody bark, brought principally from Carraccas and the neighboring parts, and sold by our apothecaries under the name of *yellow bark*; but better known in commerce by the name of *Carthagena bark*. It is in solid, smooth or splintery pieces, of a yellowish colour, very woody and fibrous in its texture, and greatly inferior to the rest both in bitterness and astringency. Being sold at a much lower rate than the sorts which are brought round Cape Horn, it is largely purchased by dealers, and probably constitutes three quarters of the bark now consumed in the United States.* 2.—A small quilled bark is kept by our best druggists, and sold at a higher price than the preceding. This is one of the most valuable species, and is probably the true pale or quilled bark of Loxa, already described. 3.—A thick reddish bark, with a fibrous fracture and an intensely bitter taste, covered with a rough external coat, which however is sometimes removed. This is sold at a very high price under the name of red bark. It appears to me, however, to be a variety of the genuine yellow bark of European authors. When properly prepared, it is the most powerful of the species. Before being pulverized, this bark should be deprived of its rough external coat, sometimes constituting half its thickness, which is erroneously styled in most books the epidermis, but consists in reality of the old cortical layers, which, being pushed outward by the growth of new bark within them, become effete, juiceless and inert, and only serve to reduce the strength of the live bark, when mixed with it. In point of medical efficacy, this species is the best now met with in our druggists' stores. The quilled bark is next to it in strength, and is even equal when the former is not

* Since the above was written, I observe by the last edition of Professor Chapman's treatise on Therapeutics, that the prevalence of Carthagena bark over the Peruvian has been noticed in Philadelphia. Whether this bark is the product of any species of cinchona, or of some other genus of trees, it is difficult to determine. It has by some been assigned to the *Cinchona micrantha*, but the late French Journals announce the *Portlandia hexandra* as the source of Carthagena bark. The large size of the pieces, however, is somewhat against the latter supposition, in regard to the Carthagena bark of our markets.

deprived of its old cortical layers. In selecting bark, those specimens should be rejected, which have contracted any moisture, mustiness or mould, or which bear evidence of having been immersed in a fluid to increase their bitterness.

CHEMICAL ANALYSIS. No vegetable substance has been more laboriously examined by chemists than the Peruvian bark. On account partly of the different species employed by them, their results do not coincide, nor lead to any very exact conclusions as to the general constituents of these barks. Vauquelin formed four different chemical classes from among the barks which he examined, according to the action produced on them by vegetable astringents and gelatin. The first class precipitate astringents, but not gelatin; the second precipitate gelatin, but not astringents; the third precipitate both; and the fourth neither astringents nor gelatin. A variety of proximate vegetable principles have been detected in the different cinchonas, such as resin, tannin, extractive, gluten, gum, starch, and a minute portion of volatile oil. A peculiar substance is precipitated from the infusion of cinchona by an infusion of galls. This was first noticed by Dr. Maton. Afterwards it was supposed by Seguin to be gelatin, and it was proposed to substitute animal glue for bark in the cure of fevers. Dr. Duncan, however, demonstrated that it was a distinct principle, and gave it the name of *cinchonin*. Some salts, with a base of lime and of ammonia, are also found in different barks, one of which, in the yellow bark, is a compound of lime with a peculiar vegetable acid, to which Vauquelin gives the name of *kinic*, and Duncan of *cinchonic* acid. Lastly, as if the Peruvian bark was to furnish a mine of new substances, Pelletier and Caventou have lately elicited two new alkalies, one from the pale bark, which they call *cinchonine*, and one from the yellow, which they have named *quinine*. The red bark, which was expected to furnish a third alkali, surprised them by presenting a mixture of the other two, and each of these in greater abundance than either had been furnished singly by the other barks. These alkalies appear to be the same substance, or nearly so, with that which Duncan had called cinchonin. The French chemists, however, consider them as alkalies, since they are capable of uniting with acids and

forming salts. *Cinchonine* is obtained in white, transparent, needle-shaped crystals, soluble in 7000 parts of water, having little taste, except when dissolved in alcohol or acids, not fusible by any heat which does not decompose it. The precipitate, which galls produce in the infusion of bark, is according to them a gallate of cinchonine. *Quinine* is as nearly similar to this as potass to soda. It differs in solubility, being very soluble in ether, while cinchonine is not. The salts also differ in the form of their crystals, particularly the acetate.

SOLUBILITY. Water extracts the sensible qualities of bark, even when cold, in a considerable degree. Hot water becomes more strongly impregnated, but grows turbid in cooling. If the boiling heat is continued long, the soluble matter undergoes a change, and becomes less soluble than before. This change has been attributed to a combination with the atmospheric oxygen; but when decoction is carried on in covered vessels, the steam drives out the air, and it is difficult to see how such combination can take place. Alcohol is a powerful solvent, and, according to Neumann, takes up twice as much matter as water. But no solution of the ingredients of bark is found to answer in medicine as a substitute for the bark itself.

ADULTERATION. Besides the substitution of one bark for another, under the same name, various foreign barks, resembling some of the varieties of cinchona, are occasionally mixed with, or sold for it. They can only be distinguished by those accustomed to the taste and smell of the true cinchona. Spurious barks are said to be immersed in a solution of aloes, to increase their bitterness. I have seen specimens, which, from the difference of their exterior and interior, appeared to have undergone some sophistication of this sort.

USES. The medical properties of the Peruvian bark are those of a powerful tonic, an astringent and antiseptic. Its earliest and most durable reputation was acquired in the treatment of intermittent fever, and in this disease its character remains unchanged at the present day. In regard to the time and mode of exhibiting it, some diversity of opinion has prevailed among physicians. It seems now, however, to be generally agreed, that it

should be given as early as possible in the disease, premising only a thorough evacuation of the alimentary canal. It should be commenced immediately after a paroxysm, and taken in doses of two scruples or a drachm, once in two or three hours, so that an ounce may be taken in twenty-four hours. During the paroxysm, its use must be suspended. In fevers of the remittent kind, where the remissions are very distinct, and there is not much arterial excitement, the bark is sometimes interposed with advantage. But its use should be watched with caution, and suspended if an aggravation of symptoms supervene. The continued fevers of this country, being generally attended at their commencement with a more or less inflammatory diathesis, very rarely admit of the use of bark, except it be at their latter stages, when prostration of strength, low delirium, twitching of the tendons, &c. are liable to take place. In these cases it is useful, though less decisively so than wine and opium. It does not always agree with the patient, and if prematurely or injudiciously administered, it has appeared to impede the cure and protract convalescence. As no exact rule can be laid down for the time of commencing its use, where it is thought expedient to give it, the operation of the first doses must be attended to with vigilance and caution.

In acute rheumatism the bark has been employed by many practitioners in imitation of Dr. Haygarth, who not long since recommended it. In this obstinate disease it sometimes does good in the advanced stages, after the fullness and hardness of the pulse has subsided, but it is rarely, I believe, of advantage in the earlier periods of violent acute rheumatism.

Bark, both externally and internally employed, is beneficial in malignant cynanche, and other diseases accompanied with gangrene. When combined with other parts of a tonic regimen, it is useful in some nervous and spasmodic diseases attended with debility; also in rickets and scrofula. It sometimes promotes the cure of old syphilitic taints, and has a good effect in supporting the vital powers under the debilitating effect of large suppurations, abscesses, extensive ulcers, and cases where gangrene is threatened or actually established.

From their analogy to intermittent fever, bark has been tried in other intermittent complaints, particularly in the distressing affection called *periodical head-ache*. In this complaint the bark, given liberally between the paroxysms, is a very effectual remedy, being equalled by no other excepting arsenic, which, in most periodical complaints, operates with an efficacy resembling, if not surpassing, that of the cinchona.

EXHIBITION. The infusion, decoction and extract of Peruvian bark, described under their respective heads, are preparations of inferior strength, but nevertheless sometimes better adapted to weak stomachs than the powder. Tincture of bark cannot be given in any important case, so as to produce the peculiar effect of the cinchona, without at the same time introducing an injurious quantity of alcohol. The best form is undoubtedly that of the substance reduced to fine powder. This may be taken in doses of from one to four scruples diffused in wine or milk, which fluids cover the taste tolerably well, provided they are taken as soon as mixed. In weak stomachs, which cannot support the powder, a mixture of the aqueous and alcoholic solutions is substituted with advantage.



CINNAMOMUM.

Cinnamon.

ORIGIN. The *Laurus cinnamomum*, which produces this fine spice, grows in the East Indies, particularly in the Island of Ceylon. It has also been cultivated in the Isle of France, and tropical parts of America. Cinnamon is the interior bark of the young trees between four and eighteen years old, deprived of its outer coat before drying.

QUALITIES. Good cinnamon has a fragrant odour, and a very pleasant, sweet, aromatic, pungent taste. The best is very thin, of a yellowish colour, and breaks into splinters. It has an agree-

able, sweet taste, and is not so hot as to occasion pain in the mouth. This drug is sometimes adulterated with refuse cinnamon, from which the oil has been extracted by distillation. The fraud is easily discovered by the weak taste and smell of such pieces. Cassia bark, and what is called Chinese cinnamon, are sometimes mixed with it. These are more hot, but less sweet and agreeable to the taste. Cassia is also known by its slimy feel in the mouth. The virtues of cinnamon depend on its volatile oil and on its astringency.

USES. It is given as a cordial stimulant and astringent, in complaints resulting from a relaxed state of the stomach and intestines, particularly in diarrhœa from this cause. Its pleasant taste renders it a useful vehicle or accompaniment for other medicines.

EXHIBITION. A scruple of the powder may be given for a *dose*; but the tincture is a more common form of exhibition; which see.



CINNAMOMI OLEUM.

Oil of Cinnamon.

This oil is distilled from cinnamon bark, after it has been macerated in sea water for two days. Eleven pounds of the cinnamon are said to be necessary to produce one ounce of oil. Its consequent high price leads to its adulteration with alcohol and with fixed oils, which last, if present, cause it to leave a greasy stain, when it has been dropped on paper. Oil of cinnamon is a powerful stimulant, sometimes given in flatulence and spasm of the stomach; one or two minims on sugar being a *dose*. It is among the numerous local applications to carious teeth.

COLCHICUM.

Meadow Saffron.

ORIGIN. The *Colchicum autumnale* is a bulbous-rooted plant, common in Europe, and easily cultivated, though not native in this country. The leaves appear in spring, but the plant does not flower till about September. After flowering, the old bulb decays, and in the mean time a new one is formed, which produces the plant of the next year—a circumstance common to various bulbous-rooted vegetables. For medicinal use the bulbs should be dug by the middle of summer, since they become nearly inert while producing their fructification. Those which do not flower probably retain their activity longer, which may perhaps account for some of the different opinions of writers on the subject.

QUALITIES. The recent bulbs are ovate and solid, and when cut across exude a thick, acrid juice, which, if swallowed even in minute quantity, leaves a burning sensation in the fauces and stomach. Pelletier and Caventou report the following substances as resulting from an analytical examination of these bulbs, viz. a fatty matter composed of elaine,* stearine and volatile acid; acid gallate of *veratrine*, yellow colouring matter; gum, starch, inuline, woody substance, and a minute quantity of ashes.† Mr. Thomson, author of the London Dispensatory, finds that *gluten* is one of the constituent parts of the colchicum bulb, when in its perfect state; that this principle is sometimes destroyed by drying; and that its presence is a test of the goodness of the medicine. According to this writer, gluten may be detected by the alcoholic solution of *guaiac*, or resin of *guaiaicum*. For this purpose about ten grains of the dried bulb are to be rubbed with about sixteen minims of distilled vinegar, to dissolve the gluten; then if they be rubbed again with an equal quantity of the alcoholic

* See *Adeps.*

† For the properties of *veratrine*, see *Veratrum album*.

solution of guaiac, a beautiful cerulean blue colour appears and remains permanent, if the specimen be a good one. He is of opinion, that the bulbs, when taken up, should be immediately cut into slices of about the thickness of half a crown, and dried without artificial heat. In their dry state, these slices should be oval, friable, of a whitish colour, somewhat granular, bitter without sweetness, and destitute of smell. Mr. Battley thinks the bulbs should be dried in a heat of 170° .

USES. Colchicum is in large doses a deleterious, acrid-narcotic ; in small ones a cathartic and diuretic ; possessing, likewise, peculiar properties of a sedative kind. It appears to have been known to the ancients as a poison, and during the last century it has been occasionally employed as a medicine in dropsy, asthma, and some other chronic diseases. Recently it has excited much notice, especially in Great Britain, as a remedy in gout, and a sedative in various painful and inflammatory affections. The interest excited by a secret French specific, the *Eau medicinale*, which was found to relieve the paroxysms of gout, led to various imitations and substitutes for that preparation. Among these, a vinous tincture of colchicum was found very nearly to resemble the foreign compound, both in its sensible properties and medicinal effects. Accordingly, the *Wine of colchicum* became a prevailing medicine for gout, and was used with various success in that disease by different practitioners. The use of colchicum was soon extended to chronic rheumatism and other painful affections, and at length it was applied, by Mr. Haden and others, to the cure of acute inflammatory diseases, and the treatment of cases in which bloodletting is commonly employed. Sufficient evidence has been published to establish the fact, that this medicine, when possessed of its full activity, may be so managed as to diminish morbid force and frequency of the pulse, to allay pain and other phenomena of inflammation, and in certain cases to fulfil the object of depletion by the lancet. The Messrs. Haden inform us, that in pure inflammations, if it be given every four hours until it produce an abundant purgative effect, the pulse will become nearly natural, from being either quick and hard, or slow and full ; that in many cases its use may be substituted for

bloodletting, at least when inflammation does not exist to an alarming degree in a vital part; and that the patient is left in a state favorable to more rapid recovery, when fever and inflammation have been removed by colchicum, than when the same end has been effected by other means. In chronic rheumatism it is said rarely to fail, if persevered in for a time sufficiently long; in habitual discharges of blood from plethora, it has been substituted for frequent venesections, and after accidents it is said to have the power of averting the severe consequences which usually follow such cases.

In this city considerable attention has been bestowed upon the effects of colchicum in different diseases. The article employed has been the bulb imported in a live state, packed in sand, and dried immediately after its arrival. The sprouting of the flower-bud during transportation did not appear to lessen its activity. Administered in powder, this medicine has been found, in a variety of instances, to relieve the symptoms of pulmonary and of peritoneal inflammation, in a manner not easily to be accounted for, except by the reduction of the inflammation. Its most frequent operation, I believe, when fairly tried, has been to allay pain, reduce the pulse, and diminish symptomatic fever; to move the bowels, generally within twenty-four hours, and to excite nausea and great disgust, if the dose be large. It has nevertheless sometimes failed to produce these effects. In rheumatic complaints its success has been equivocal, but on the whole rather favorable to its reputation than otherwise.

EXHIBITION. Colchicum has of late been most frequently administered in powder. Five grains may be given three times a day to an adult, where the stomach is not particularly delicate. This quantity I have found to remain on the stomach and to move the bowels commonly on the second day. In important cases, the dose may be increased to eight or nine grains, if nausea does not prevent. In chronic cases, the *dose* of five or six grains may be given, according to Mr. Haden, once a day in the morning, and continued for weeks together. This writer combined with it small quantities of sulphate and carbonate of potass, and gave it in a state of effervescence with an acid.

It is prudent to begin the use of a new parcel, or specimen, with smaller doses than those above specified, and gradually to increase them, since the root is at some times more active than at others. The variable activity of the medicine is indeed a great impediment to its usefulness, and nothing can be more discordant than the statements of writers on this subject. Professor Murray has cited various instances, in which this root has produced distressing and even fatal effects; while, on the other hand, an author by the name of Kratochvill asserts, that himself and others had eaten drachms of the root, both in spring and fall, with impunity; and Orfila tells us, that he had repeatedly given several bulbs to dogs, in the month of June, without causing them any inconvenience. *For further remarks, see VINUM COLCHICI.*

The seeds of colchicum—*COLCHICI SEMINA*—have been proposed by Dr. Williams as a substitute for the bulb, possessing all the medicinal advantages of the plant, attended with greater mildness and uniformity of operation. Several practitioners have agreed in their accounts of the efficacy of these seeds, particularly in chronic rheumatism. Dr. Williams uses a *wine* made by infusing two ounces of the seeds in a pint of sherry. From one to three drachms are given once or twice a day in aromatic water. He also employs a tincture made with the same proportions. In this country colchicum seeds have been used with some benefit in rheumatic complaints. They apparently possess the advantage of being less liable than the root to alter by age. I have found two or three grains of the powder to produce vomiting and purging in a mild degree, and ten grains to bring on powerful vomiting and purging, with vertigo and impaired vision during twenty-four hours.

COLLYRIA.

Collyria.

The Collyria of the Pharmacopœia are metallic lotions, prepared of such strength as to be applicable to the eyes in many

cases of disease; also, occasionally, to mucous membranes of other parts, and to inflamed or excoriated surfaces.

COLLYRIUM PLUMBI ACETATIS. *Collyrium of Acetate of Lead.*—This is of use as a sedative and astringent lotion in some forms of chronic ophthalmia. It is also useful as a discutient in erysipelatous and other superficial inflammations. It is sometimes employed as an injection in gonorrhea; but, when this practice is adopted, a weaker solution is preferable.

COLLYRIUM PLUMBI ACETATIS ET OPII. *Collyrium of Opium and Acetate of Lead.*—This resembles the preceding, but agrees better with irritable cases of chronic ophthalmia.

COLLYRIUM ZINCI ACETATIS. *Collyrium of Acetate of Zinc.*—A double decomposition takes place during the preparation of this article; sulphate of lead is deposited, and acetate of zinc remains dissolved. It is a valuable astringent collyrium.

COLLYRIUM ZINCI SULPHATIS. *Collyrium of Sulphate of Zinc.*—This is one of the best astringent lotions for cases of ophthalmia, which require remedies of that class. I have observed it to agree particularly well with the weak eyes of nursing women.

COLOCYNTHIS.

Colocynth.

ORIGIN. This fruit, called also coloquintida and bitter cucumber, is the product of an annual plant growing in Turkey. Belonging to the same genus as the cucumber and melon, it affords a remarkable example of a departure in nature from the general law, which makes the medicinal powers of plants correspond with their botanical affinities. The fruit of colocynth is round and yellow, and about the size of an orange. It is im-

ported in a dry state, being previously divested of its rind. The medicinal part is the dry pulp, or inside cellular portion, without the seeds.

QUALITIES. The pulp has a mucilaginous quality in the mouth, but its taste is extremely bitter and nauseous. It is destitute of smell. According to Mr. A. L. Thomson, it contains mucus, resin, a bitter principle and some gallic acid. The fruit is said by him not to be good, if it is larger than a St. Michael's orange, or has black, acute seeds.

USES, &c. Colocynth has been known as a drastic cathartic, ever since the time of the ancient Greeks. When given alone it purges with great vehemence, sometimes producing inflammation and bloody discharges. Trituration with oily or farinaceous substances has been thought to moderate its action. It is, however, seldom prescribed alone, but added in small quantities to certain compound cathartics, to quicken their action. Six or eight grains are a sufficient *dose*.

COLOMBA.

Columbo.

ORIGIN. This root is brought from Mozambique, on the eastern coast of Africa, where the plant grows wild. From its name it was formerly supposed to be brought from Columbo in the Island of Ceylon. This, however, is not the case. In a dissertation on the medicinal plants of Ceylon, published by Dr. Scott in 1819, containing seventy or eighty species, the columbo root is not mentioned. The plant which produces this root has not yet been named. A specimen carried from Mozambique, and cultivated at Madras, proved to be the male of a diœcious twining plant, apparently of the natural order *Menisperma*.

ADULTERATION. Within a few years the cities of the United States have been supplied with an article under the name of columbo, which is shipped in barrels from New Orleans, and often

sold at auction and otherwise as the genuine drug. It appears to be the root of *Frasera Walteri*; which see. It may be distinguished from the true columbo by its whiter colour, lighter texture, the admixture of longitudinal pieces, and especially by its taste, which is sweetish at first, and not more than half as bitter as the real columbo.

QUALITIES. The Mozambique columbo is imported in thin, circular pieces, an inch or two in diameter, which are apparently the transverse sections of a fusiform root. Its surface is rough and irregular, indistinctly marked with rays and circles, and of a brownish, rusty texture outside. The odour is slightly aromatic, and the taste an intense, penetrating, durable bitter. Both water and alcohol extract its bitterness. On chemical examination, M. Planche found it to contain a peculiar substance like animal matter, a yellow, bitter, resinous matter, about one third of its weight of fecula, and a small portion of volatile oil. It appears, according to Mr. Thomson, to contain cinchonin.

USES. Columbo is a mild, but powerful tonic, communicating vigour to the stomach, when properly administered, without producing stricture, nausea, or oppression. It agrees peculiarly well with dyspeptics, and I have repeatedly found cases of enfeebled digestion to bear this substance with advantage, when most other tonics produced disagreeable symptoms. It is usefully employed in diarrhœa resulting from a redundant flow of bile, and is said to possess considerable reputation in the cholera of the East Indies. It is employed to restrain vomiting, an indication which few bitter tonics are capable of fulfilling. Columbo has been substituted for Peruvian bark, in consequence of its milder action, in some febrile diseases, particularly in hectic and the low stage of puerperal fever.

EXHIBITION. Ten or twenty grains of the powder may be given for a *dose*, in milk or in clear water, and repeated three times a day. In dyspeptic cases small doses answer better than large ones. The *tincture* is a useful form of exhibition.

CONFECTIONES.

Confections.

Confections are soft solids, in the composition of which sugar forms a principal article. The term includes what have been called *conserves*, made from recent vegetable substances, beaten with sugar as a preservative; and *electuaries*, which were formed of dry powders, &c. brought to a proper consistence with syrup, either to facilitate their deglutition, or to conceal their taste.

CONFECTIO AROMATICA. *Aromatic Confection*.—A combination of warm, stimulating substances, sometimes given in colic or cramp from flatulence, atonic gout, &c. A drachm may form a *dose*.

CONFECTIO AURANTII CORTICIS. *Confection of Orange Peel*.—Chiefly used as a vehicle for other medicines. The virtues which it has, are those of the orange peel.

CONFECTIO CASSIÆ. *Confection of Cassia*.—This compound is gently laxative in the *dose* of two or three drachms, but is liable to occasion griping if given alone.

CONFECTIO ROSÆ. *Confection of Roses*.—Under the name of *Conserve of Roses*, this is well known as a pleasant vehicle for more active medicines. It is peculiarly well adapted for making pills of metallic and other heavy powders. It is sometimes given alone as a mild astringent and demulcent.

CONFECTIO SCAMMONII. *Confection of Scammony*.—The scammony is here qualified by the aromatic articles, so as to be rendered less griping. The strength is somewhat uncertain, from the quantity of syrup being left at the discretion of the

apothecary. Half a drachm will commonly prove purgative ; but the article is not much used.

CONFECTIO SENNÆ. *Confection of Senna.*—This is the old *lenitive electuary*, formerly much esteemed as a laxative. It is less used at the present day, except as a pleasant accompaniment to other more active substances. Two or three drachms form a *dose*.

CONIUM.

Hemlock.

ORIGIN. Hemlock is a tall, biennial, umbelliferous plant, native of Europe and Asia, but now common by road sides in many parts of the United States. It is supposed to be the same with the *Conium* employed as a poison by the ancient Greeks, but in our latitudes rendered less active by the influence of climate. If the change produced in it by climate be as great as that which happens in the poppy, the supposition is at least a plausible one.

QUALITIES. The leaves of this plant have a strong, sickly odour, and a bitter, nauseous taste. These properties seem to reside in a volatile principle, since they may be destroyed by long drying, and may be concentrated by distillation, leaving a comparatively insipid residue. According to Schrader, hemlock contains extractive, gummy matter, resin, albumen and fæcula.

MEDICINAL PROPERTIES AND USES. This plant is a powerful narcotic, differing however in strength, according to the circumstances of its growth and preparation. If the green leaves of a mature plant, which has grown in the sun, or the juice of these leaves, either crude or properly inspissated, be taken into the stomach, the following symptoms, if the quantity has been sufficient, will rarely fail to take place, viz. a dizziness of the head and nausea of the stomach ; a sense of fullness in the eyes and diminished power of vision, together with a general faintness

and muscular weakness of the whole body. These sensations usually begin in the course of half an hour. If the dose has been moderate, they will for the most part disappear in the course of half a day or less, and seldom continue beyond twenty-four hours. The idiosyncracies of different persons render them variously susceptible of the action of this medicine. Hemlock has been undeservedly celebrated in a variety of chronic diseases, such as cancer, syphilis, mania, epilepsy, &c. It is only useful in these cases as an occasional palliative to pain. It is however a remedy of great power in jaundice, which disease it rarely fails to remove, when it is not connected with permanent organic affection. The yellowness of the skin, &c. generally begins to disappear when the dose is carried high enough to produce dizziness. In the obstinate and painful disease of tic douloureux, this medicine has effected cures when pushed to its full extent. In hemicrania, which is not regularly intermittent, it has likewise given unequivocal relief.

EXHIBITION. The leaves, carefully dried and preserved in close-stopped bottles, excluded from the light, may be given in *doses* of from one to three grains, and gradually increased. The *extract*, however, is considered a more certain preparation; which see.

CONTRAYERVA.

Contrayerva.

Contrayerva is the root of a perennial plant of the West Indies and South America. It has a strong smell, and a bitterish, pungent taste. Water and alcohol, assisted by heat, extract its properties. It is stimulant, sudorific and tonic, and is recommended by several of the older medical writers, particularly Huxham and Pringle, as a useful tonic in the low stages of typhoid and malignant fevers. From five grains to a drachm are given in powder for a *dose*.

CONVOLVULUS PANDURATUS.*Wild Potatoe.*

The affinity of this plant to jalap, in its botanical character, has caused a medicinal quality to be ascribed to it, which it does not possess. It is one of the weakest of our indigenous cathartics, and requires too large a dose to be of much use in that character. It is said to mitigate strangury and gravel, and to operate as a diuretic.

COPAIBA.*Copaiba.*

ORIGIN. The balsam or turpentine called *copaiba*, and frequently *copaiva* or *capivi*, is the product of a tall tree, growing in the West Indies and South America—the *Copaifera officinalis*. It is procured by boring holes in the trunk near its base, from which the balsam flows out rapidly, so that twelve pounds are said to be collected in three hours. It is imported from Brazil in small casks containing about one hundred weight or more each.

QUALITIES. It has a peculiar, agreeable odour, resembling that of sandle wood, but its taste is bitter and acrid. It is clear, transparent, of a pale yellow colour, and lighter than water. When recent, it has the consistence of oil, but grows thick by keeping. On distillation, it yields a limpid, volatile oil, but no benzoic acid, and leaves behind a solid resin. Its composition is therefore analogous to that of turpentine.

USES. This substance agrees with other terebinthinate medicines in its power of stimulating the stomach and bowels, but more particularly the kidneys and urinary passages. Hence it readily purges, and still more generally increases the action of

the kidneys ; and, if long persevered in, may create strangury or temporary nephritis. Its action on the urethra and vagina has long since led to its use in leucorrhea and in old gleet ; but though sometimes successful in these obstinate complaints, it often shares the opprobrium of failure with other medicines. Gonorrhea, in its recent state, is now found to be more speedily susceptible of cure from a state of entire rest, and an observance of the antiphlogistic regimen, than from the old method of injections. In cases of this sort, the balsam is given by many distinguished surgeons, as soon as the ardor urinæ begins to subside, and is gradually increased until the cure is complete. Dr. Chapman recommends the free use of it in the earliest and inflammatory stage ; and states that at this period it relieves the inflammatory symptoms, and never produces stricture, swelled testicle, or any of the unpleasant sequels of the disease.—In some forms of catarrh and bronchitis, copaiba is not only a safe, but, according to Dr. Armstrong, a highly beneficial medicine. But it is often injudiciously given in pulmonic diseases of the cellular texture, from a popular idea that it is healing and expectorant. From a somewhat similar prejudice, it is applied to recent incised wounds, the healing of which it no doubt often retards, acting as an acrid, foreign substance, to prevent union by the first intention.

EXHIBITION. It is given in *doses* of from ten to fifty minims three times a day, on sugar or in milk, or made into an emulsion with mucilage of gum arabic. When it purges it must be combined with Tincture of opium ; but this does not always prevent the evil ; and we are not unfrequently obliged to suspend its use on account of this occurrence.

CORIANDRUM.

Coriander.

These seeds are the produce of an annual, umbelliferous plant, frequently cultivated in gardens. Like caraway seeds, they

form a warm, aromatic stimulant to the stomach, but are less grateful to the taste. The strength resides in an essential oil.

CORNU CERVI.

Stag's Horn.

The horns of the stag, in the form of *hartshorn shavings*, afford a gelatinous solution with water, which is nutritious and demulcent, like other animal jellies. Their chief pharmaceutical use is derived from the phosphate of lime, which they afford. They enter into the composition of the antimonial powder, and on this account are retained in the Pharmacopœia.

CORNUS FLORIDA.

Dogwood.

This is a small, native tree, well known for its ornamental flowers in most parts of the country, but more particularly in the middle and southern states. The bark of the trunk is rough externally, and of a brownish colour within. Its taste is a strong bitter, with some astringent and aromatic flavour. It appears to contain a bitter, extractive substance, tannin, gallic acid, and a small portion of resin. This bark has been much employed as a tonic in various parts of the interior country. It is particularly used in intermittent fevers, and is applied to various other cases of debility, in which tonics are indicated. When fresh, it is sometimes liable to disorder the stomach and bowels, which tendency it is thought to lose by age. It may be given in powder in *doses* of one or two scruples. Although this species has been most attended to, there are several others of the same genus, which, from their bitterness, promise quite as much efficacy.

CORNUS CIRCINATA.

Round-leaved Dogwood.

This species of dogwood is a native shrub, distinguished from others of its genus by its round leaves and beautifully spotted twigs. The bark is not exceeded by any other in bitterness, and unites with this property the chemical and sensible evidences of astringency. It is highly valuable as a tonic and stomachic, and appears to be largely in use in some parts of the United States, particularly in Connecticut, where it is employed as a substitute for cinchona, and has become an officinal article.* It is exhibited in the same way as *Cornus Florida*.

CORNUS SERICEA.

Swamp Dogwood.

This is another of the bitter *Cornels*, native in the United States. Its properties resemble the preceding so much, that it is unnecessary to repeat them. Indeed the genus *Cornus* in the northern hemisphere, like *Cinchona* in the southern, appears to have the same medical character pervading all its species, differing only in degree.

COPTIS.

Goldthread.

The *Coptis trifolia*, which was arranged among the *hellebores* by Linnæus, is a beautiful native, evergreen plant, of the northern

* See a paper by Dr. A. W. Ives in the New York Repository, 1822.

states. Its roots are creeping, thread-shaped, and of a bright yellow colour. They have an intensely bitter taste, without warmth or astringency. Alcohol is the best *solvent* of this article, forming a bright yellow tincture. Water also extracts the bitterness, but less perfectly. Goldthread is a pleasant tonic and promotes appetite and digestion. It is a popular remedy in apthous mouths and ulcers of the throat, though it does not appear to be very powerful in these complaints. As a tonic it may be given in the *dose* of ten or twenty grains of the powder. It is, however, somewhat difficult to pulverize, owing to the tenacity of the fibres. A tincture, formed by an ounce of the root in a pint of diluted alcohol, may be given in *doses* of a drachm.

COTULA.

Mayweed.

The *Anthemis cotula* is an annual weed imported from Europe, and now very common by road sides throughout the United States. Its taste is strong, disagreeable and bitter. In small quantities it is tonic, stimulating and diaphoretic; in large ones emetic and sudorific. It is commonly given in infusion.

CROCUS.

Saffron.

No medicine of the vegetable class has a higher price, in proportion to its value, than saffron. A very small part, the stigma of the flower, is picked off and cured by a particular process, the rest of the plant being rejected. The stigmas are sold in the form of pressed cakes, having a sweetish odour and a pungent, bitterish taste. They abound in a kind of extractive matter, which

has been named by Bouillon La Grange and Vogel, *Polychroite*, from the number of colours which the watery infusion assumes, when treated with different agents. Saffron is an ingredient in some compound medicines, and was formerly considered a cordial stimulant. It is a popular medicine in exanthematous diseases, being given in infusion, with a view to keep out the eruption. It is not, however, to be viewed as a medicine of great power, and is rare in this country on account of its price. The article commonly sold under its name in American shops is the flowers of *Carthamus tinctorius*.

CROTON.

Croton.

Croton tiglium. W. IV. 543. Semina. *The seeds.*

Although this article is not in the American Pharmacopœia, yet the attention it has excited of late in the European journals, furnishes a reason for offering some account of it in the present work.

ORIGIN. The *Croton tiglium* is a shrubby plant of India, which has been medicinally employed there from a remote period. Both the seeds and their expressed oil have been long used in that country, and specimens, particularly of the latter, have been lately imported into England. They have, in that country, undergone sufficient trials to prove that they constitute a powerful, and, in all probability, a useful medicinal agent.

QUALITIES. The seeds, of which each capsule contains three, are of the size of a small bean, oblong, roundish on the outside, and slightly angular within. They are covered with a thin, brittle, greyish-green coating or shell, and are whitish within. Their taste is at first mild and pleasant, but after remaining a few moments in the mouth, it is intensely acrid and burning. The interior or kernel consists, according to Dr. Nimmo, of 27 parts

of an acrid purgative principle, 33 of fixed oil, and 40 of farinaceous matter.

USES. These seeds form one of the most powerful, speedy and certain cathartics, which have been introduced into the *Materia Medica*, from the vegetable kingdom. A single grain of the kernel, or about one third part of a seed, purges with such vehemence as not always to be safe. A drop of the expressed oil likewise produces powerful catharsis. From different writers cited by Professor Murray, it appears that the seed in substance has been used in India as a drastic purgative in dropsy; that it has been effectual in expelling the tape worm; that the oil taken in the dose of one drop diffused in wine is a common purge in that country; and that it is found to operate, if only rubbed on the umbilical region.

A number of British practitioners, who have lately made trial in that country of the seeds and oil of croton, have published in the journals very decisive accounts of the efficacy of this medicine. It appears from their reports, that the oil, given in doses even of half a minim, operates speedily and copiously, occasioning nausea and griping in a small proportion only of the cases in which it has been tried. A tincture of the seeds was administered by Dr. Nimmo in more than a hundred instances, out of which, "in not more than three or four cases, was vomiting produced, and that not in a violent degree; in not many more was nausea felt; in all the cases purging was induced in a space of time between half an hour and three hours after taking the medicine; the purgative effects were generally moderate, accompanied with griping rarely, and in proportion generally to the effect which was intended to be produced."

Being accidentally in possession of a small parcel of croton seeds at the time when I first perceived the notices of this article in the English journals, and my attention having a short time before been called to a striking instance of their powerful effect;*

* A gentleman of this city, having received some green-house seeds from Calcutta, among which were those of *Croton tiglium*, was induced by the appearance of the latter to taste one of them. It proving not immediately unpleasant, he chewed and swallowed about half the seed.

I prepared a tincture by triturating the seeds in alcohol in the proportion of about six grains to the fluidounce. Of this liquid, when digested and filtered, I found a fluidrachm, and sometimes less, to operate with certainty, occasioning not more inconvenience than other purgatives, except that in a few instances it left for sometime an uncomfortable sense of heat in the mouth and stomach. In one case a physician, who used it at my request, informed me, that it caused a free salivation of a number of hours' continuance.

In the present state of the examination, we are authorized to consider the croton as a stimulating, drastic and sure purgative, well adapted to the treatment of dropsy, paralysis, *tænia* and other diseases requiring medicines of its class. It seems also adapted to apoplexy, though in one case of that disease a large dose failed to move the bowels. The small bulk required for a dose is much in favour of its employment as a common purge in many cases of less magnitude, provided future experiments shall confirm the safety and convenience of its operation.

EXHIBITION. The most eligible form of exhibition for this medicine remains to be settled. It appears to have been tried in three different modes. 1.—The substance. The great violence of its operation in this form, arising probably from its being concentrated and acting on particular parts of the mucous coat of the intestines, will probably prevent it from being used in this shape. 2.—The oil in the *dose* of a minim. This is a more common form, and is very effectual, since the oil holds the cathartic principle in solution, though, when freed from it, it becomes inert. The oil is still too concentrated to act with-

In a few minutes a great sensation of heat came on in the fauces and throat, like that occasioned by the *ranunculi*; this feeling extended to the stomach and bowels; and in less than half an hour a violent cathartic operation commenced and was repeated more than twenty times in three hours. A profuse perspiration, faintness and some vomiting also took place. The pain was represented as extreme, exceeding that of a surgical operation which some years before he had undergone. A table spoonful of olive oil, which was taken during the operation, afforded great relief to the pain.

out pain, and requires to be diffused either by making it into pills with some dry substance, or by blending it with syrup or mucilage. The principal objection against the use of the oil is its liability to adulteration. 3.—The tincture. This may be made from the oil, or directly from the seeds. Alcohol is found to dissolve all the acrid principle of the oil, leaving it mild and insipid. It, in like manner, extracts the acrimony from the seeds. The tincture conveys the medicine to the stomach in a diluted state, and promotes its equable diffusion over the lining membrane of that organ, a circumstance which has been supposed greatly to promote its easy and favorable operation. The following is the tincture which I have used :

Take of Croton seeds, bruised, two scruples and a half.

Alcohol, half a pint.

Triturate the seeds thoroughly with a small part of the alcohol ; then add the rest ; digest ten days, and filter. *Dose* about a fluidrachm.

The shell of the seeds, according to Hermann, is purgative, but Dr. Ninmo found that they did not possess the characteristic acrimony of the plant.

CUBEBA.

Cubebs.

The *Piper cubeba* is a native of the East Indies and of Sierra Leone. The fruit resembles the common black pepper in size, is of a greyish colour, and has commonly a little footstalk attached to it, from which it is sometimes called *tailed* pepper. It is less pungent than black pepper. According to Beaumé, its acrimony is retained in the spirituous extract, but not in the volatile oil. Vauquelin reports that the seeds of cubebs contain a volatile oil, a resin resembling that of copaiba, a different coloured resin, a coloured, gummy matter, an extractive principle and saline sub-

stances. Cubebs has been lately extolled in the treatment of gonorrhea, taken in the early stages of the complaint; also in *fluor albus*. The dose recommended is from a drachm to a drachm and a half three times a day, with a sufficient quantity of water to relieve the mouth from its acrimony. Probably its operation is not unlike that of copaiba balsam.

CUNILA.

Pennyroyal.

The plant called *pennyroyal* in England is a species of mint, *Mentha pulegium*; while the American plant, which bears the same common appellation, belongs to the genus *Cunila* of Linnæus and *Hedeoma* of Persoon. American pennyroyal is a warm aromatic, possessing a pungent flavour, which is common to many of the labiate plants of other genera. Like them it is heating, carminative and diaphoretic. It is in popular repute as an emmenagogue.

CUPRUM.

Copper.

Copper is a metal of a light red colour, ductile, malleable and sonorous, having a styptic taste, and a peculiar, disagreeable odour when rubbed. Its specific gravity is 8.895, and it melts at 27° Wedgewood. When exposed to the atmosphere, it loses its lustre and becomes covered with a green coating, which is carbonate of copper. Copper, in its clean metallic state, exerts but little energy on the human system and is not used in medicine. The poisonous character of the metal is derived only from the great activity of its salts. Copper coins have been swallowed in

various instances, and remained in the alimentary canal two or three months without occasioning any symptoms attributable to the metal. In a few cases, however, they have created disturbance in the functions, and in one instance a salivation, resembling that from mercury, was induced, apparently, by the swallowing of a copper coin. When poisoning occurs from copper, it is sometimes in consequence of want of cleanliness in the use of copper vessels, which are suffered to become coated with the green carbonate; but more frequently it occurs from vinegar being suffered to stand in such vessels until verdigris is formed, or from the imprudent immersion of copper in acetous fluids to produce a green colour in articles preserved by them. The presence of copper in a liquid may often be suspected from the taste alone. It may be chemically tested by adding a few drops of water of carbonate of ammonia, which produce a fine blue colour, if copper be present; or by immersing a blade of polished steel, which will become coated with the copper. According to Orfila, the best antidote for verdigris is *sugar* taken in large quantities, both pure and dissolved in water; but this has been doubted.

CUPRI SUBACETAS.

Subacetate of Copper. Called Verdigris.

ORIGIN. Verdigris is made at Grenoble, in the south of France, by moistening the surface of copper plates with distilled vinegar, until a subacetate of the metal is formed. At Montpellier it is made by covering the plates with the skins of grapes, after the wine has been pressed from them, and water; until they ferment and produce an acetous acid capable of acting on the copper.

QUALITIES. Verdigris is sold in hard, foliaceous masses, of a beautiful blueish green colour, not deliquescent, having no smell, but a styptic, disagreeable, metallic taste. It is soluble in less than twice its weight of distilled water at 60°. It may be sus-

pected of adulteration when it deliquesces, has a salt taste, or contains spots of a different colour.

USES, &c. The principal use of verdigris is among painters. In medicine it is not much employed, on account of the violence of its action. One or two grains act speedily as an emetic, but sometimes occasion distressing symptoms. Large doses bring on violent vomiting and purging, inflammation of the intestinal canal, delirium, syncope, convulsions and death. Diluents taken freely, whites of eggs, sugar and oily demulcents are the best antidotes. Verdigris, in powder, is applied to ulcers with hard edges or fungous granulations, as a gentle escharotic.

The CUPRI SUBACETAS PRÆPARATUS, or *Prepared subacetate of copper*, of the Pharmacopœia is this article reduced to an impalpable powder for *exhibition*.

CUPRI SULPHAS.

Sulphate of Copper. Called Blue Vitriol.

ORIGIN. Blue vitriol is obtained by evaporating waters which hold it in solution. Such waters are found in some copper mines, where the sulphuret of copper, by exposure to air and moisture, has become converted into a sulphate. Sometimes it is produced artificially by roasting the sulphuret, and exposing it till it becomes a sulphate, which is then dissolved and crystallized.

QUALITIES. It crystallizes in rhomboidal prisms of a deep blue colour, without smell, having a very austere, acrid, styptic taste. It undergoes a slight efflorescence when exposed to the air. It is *soluble* in four parts of water at 60°, and in less than two at the boiling point. The solution reddens vegetable blues shewing an excess of acid. It appears by late experiments to be a bisulphate containing one proportional of peroxide of copper to two of sulphuric acid, combined in its crystalline form with ten proportionals of water, on which its beautiful blue depends. It is precipitated from its solutions by alkalies and their carbo-

nates, subborate of soda, acetate of ammonia, tartrate of potass, muriate of lime, nitrate of silver, the acetates of lead, oxymuriate of mercury, and astringent vegetable solutions, which are therefore *chemically* incompatible with it.

USES. Sulphate of copper is astringent and emetic. Although its internal use is not extensively resorted to in Europe, it is esteemed in this country a medicine of decided and peculiar utility. We possess few substances which exert a more powerful and speedy effect in arresting hemorrhages, particularly those of the uterus, whether during pregnancy, or after delivery, than a weak solution of this salt. The preparation which is most employed is an aqueous solution containing a grain and a half in the fluidounce. (See *Solution of sulphate of copper*.) I apprehend that the emetic power of sulphate of copper has been underrated, since many books direct the least dose for an emetic to be two grains, and for a tonic one fourth of a grain. I have rarely found the stomach of a female patient capable of retaining a quarter of a grain, and have often seen vomiting produced by a much smaller quantity. Sulphate of copper is said to have been found a valuable auxiliary to bark in the management of protracted and obstinate intermittents, a grain being given in four doses during the day, combined with bark or with opium, to modify its action. A solution of four grains to the fluidounce has been recommended as a wash for chancres and sloughing ulcers of the penis. A saturated solution, and the dry powder, are frequently employed as mild escharotics.

EXHIBITION. For an emetic, from one to six grains may be given, but its operation is unpleasant. See the following article.

LIQUOR CUPRI SULPHATIS.

Solution of Sulphate of Copper.

This solution and others of similar strength have for a considerable number of years been employed in this city and some other

parts of the United States, as a remedy for uterine and other hemorrhages. Thirty minims are given at a *dose* in water. This quantity generally produces nausea and a diminution of hemorrhage in puerperal cases. It may be repeated in ten or fifteen minutes, if its effects are not sooner felt. The sulphuric acid contained in the preparation is an *adjuvant* to the sulphate of copper.

CUPRI AMMONIARETUM.

Ammoniaret of Copper.

The article which, in conformity to the Edinburgh nomenclature, is called ammoniaret (otherwise ammoniuret) of copper, appears to be a salt, either triple or mixed, composed of sulphuric acid, and oxide of copper, and ammonia. It has a blue colour, and a styptic, disagreeable taste, and exhales the odour of ammonia. It is given in chorea and epilepsy, and was highly thought of by Cullen. The commencing *dose* is a quarter of a grain in a pill made of bread, to be gradually increased to four or five grains if the stomach bears it.

LIQUOR CUPRI AMMONIARETI.

Solution of Ammoniaret of Copper.

This liquid, adopted from the Dublin College, probably contains muriate of lime in solution, as well as the compound of copper and ammonia, and some other ingredients. It is employed externally as a stimulating wash and mild escharotic to indolent ulcers. Largely diluted with water, it has been applied to specks on the cornea.

CURCUMA.*Turmeric.*

Turmeric is brought from the East Indies, and is well known as a yellow dye, and as an ingredient in *Curry* powders. In its medicinal effects, it is a mild stimulant and subtonic, but is little used at present, except as a colouring matter. It tinges the urine yellow in persons who take it.

DECOCTA.*Decoctions.*

Decoctions are solutions of vegetable principles in water, made by the process of boiling. It is necessary that the substances submitted to decoction should be of a kind, the active principles of which are soluble in water, and at the same time not so volatile as to escape during the process. They should, if solid, be bruised or sliced, and the vessel should be of such shape that the water may cover them entirely. It is convenient that the vessel should be loosely covered, to keep out impurities, and diminish the loss by evaporation ; though not for the purpose commonly specified, of excluding the air, which object is sufficiently effected by the steam. The boiling should not be too long continued, since not only a part of what is first dissolved is afterwards precipitated by the diminution of the water, but new compounds, of an insoluble nature, take place among the different chemical ingredients. Decoctions should be filtered through linen while hot. They ought not to be prepared more than a day or two before they are wanted, and it is on this account that they are extemporaneously made in families, perhaps more frequently than prepared by apothecaries.

DECOCTUM ARALIÆ NUDICAULIS. *Decoction of False Sarsaparilla.*—This is not a very important preparation. The tonic properties of the plant may be retained, but its volatile constituents are likely to be dissipated in the process.

DECOCTUM CINCHONÆ. *Decoction of Peruvian Bark.*—The direction given for preparing this decoction may be applied to any of the varieties of bark, at the option of the prescriber. The boiling is limited to ten minutes, since, if too long continued, an insoluble extract begins to be formed in the water. The decoction in cooling deposits a sediment, and must therefore be shaken before it is administered. It is given chiefly to patients, who do not bear the bark in substance. *Dose* from one to three fluid-ounces.

DECOCTUM COLOMBÆ COMPOSITUM. *Compound Decoction of Columbo.*—From the nature of its ingredients, this must form a valuable tonic in dyspepsia, half a fluidounce being taken three times a day.

DECOCTUM DULCAMARÆ. *Decoction of Bitter sweet.*—This decoction is the common form for administering *bitter sweet*, and has been found of important use in leprosy and other diseases, to which that plant is applied. Its use may be commenced with half a fluidounce three times a day, and gradually increased to any amount, which does not produce nausea and giddiness. I have found narcotic effects to arise from a common wine glass full.

DECOCTUM GUAIACI. *Decoction of Guaiacum. Formerly Decoction of the Woods.*—This is a feeble preparation of guaiacum wood and sassafras, with some demulcent ingredients. The resin being insoluble, and the volatile oil dissipated, the remaining ingredients must be of small efficacy. It was formerly esteemed as a medicine in syphilis and rheumatism. A pint or two may be taken in a day.

DECOCTUM HORDEI. *Decoction of Barley.*—Very demulcent and nutritive. See *Hordeum*.

DECOCTUM HORDEI COMPOSITUM. *Compound Decoction of Barley.*—Very much like the preceding, but more agreeable to the taste.

DECOCTUM LICHENIS. *Decoction of Iceland Moss.*—A pint or more may be taken in a day by patients requiring the article. See *Lichen*.

DECOCTUM MEZEREI. *Decoction of Mezereon.*—This decoction derives its efficacy from the mezereon, and is given in doses of from four to six fluidounces several times in a day. It is very useful in chronic rheumatism, but less so in syphilis than it was once supposed to be.

DECOCTUM SARSAPARILLÆ. *Decoction of Sarsaparilla.*—This is a demulcent and slightly tonic liquid. It has been used, and is still used, with alleged advantage, as an alterative in syphilis and cutaneous diseases.

DECOCTUM SARSAPARILLÆ COMPOSITUM. *Compound Decoction of Sarsaparilla.*—This resembles a decoction once celebrated under the name of *Lisbon diet drink*. It has been esteemed in venereal and rheumatic affections, but it is a cumbersome preparation, and probably depends on the mezereon for much of its activity. A pint may be taken in divided doses during a day.

DECOCTUM SCILLÆ. *Decoction of Squill.*—This is a compound preparation from several powerful diuretics, calculated to be of use in dropsical cases. The activity of the squill, however, is probably impaired by the boiling. Half a fluidounce may be taken at a dose, and gradually increased till it offends the stomach.

DECOCTUM SENEGÆ. *Decoction of Seneca Snake root.*—This is the common form in which senega is exhibited, from one to three fluidounces being given at a dose, three or four times in a day.

DECOCTUM VERATRI ALBI. *Decoction of White Hellebore.*—This is not taken internally, but used as a lotion in tinea, herpes, &c. Its use requires caution.

DELPHINIUM.

Larkspur.

The botanical alliance of the Larkspur of our gardens with Aconite and some other poisonous plants, would justify, *a priori*, a belief, that it possesses active properties. This is found on experiment to be the case. A tincture formed by infusing an ounce of the bruised seeds in a pound of spirit has been found an antispasmodic in asthma, and an active diuretic in dropsy. The dose is from ten to twenty drops.* Larger doses are liable to nauseate, and would, not improbably, produce narcotic symptoms.

DIGITALIS.

Foxglove.

ORIGIN. The *Digitalis purpurea* is an elegant biennial plant, common in Great Britain and other parts of Europe, but not found native in the United States. It is easily cultivated in gardens, and the best specimens of foxglove which I have seen were raised in this country by the Shakers. The practice adopt-

* See New England Journal, Vol. II. 348.

ed by these people of pressing dried herbs into compact, square cakes is a very useful mode of preserving their properties.

QUALITIES. The leaves have a nauseous, bitterish taste. Both water and alcohol extract their properties, but particularly the latter. They contain extractive and a pea-green, resinous matter; also some salts of ammonia, potass and lime.

MEDICINAL PROPERTIES AND USES. Foxglove has the general properties of a narcotic, but is more directly sedative to the circulating system than most of that class, at the same time that it possesses qualities somewhat peculiar to itself. Its powers and *modus operandi* have been the subject of much controversy among medical men, and do not appear to be definitively settled at the present day. We may however state the following as the effects which are commonly produced by a large dose, independent of connection with any diseased state of the body:—In the head it brings on giddiness, imperfect vision, more or less interruption of the intellectual faculties, and sometimes a throbbing pain. The stomach is affected with nausea, accompanied by a distressing faintness or sinking, to which vomiting frequently succeeds. The bowels are not always affected, but sometimes profuse and obstinate evacuations take place, followed by great prostration of strength. On the circulating system digitalis has a sedative influence, reducing in a remarkable manner the force and frequency of the pulse. It is yet a point of dispute among physicians, whether this reduction is immediate and direct, or the final result of a primary excitement by the medicine. It is however certain, that if such excitement exists, it is trifling and evanescent, compared with the depression which uniformly follows. In a practical view, the determination of this question is of less consequence than it might at first view appear to be, as the reduction takes place within a short time after the medicine is given. It is influenced by some collateral circumstances, particularly by posture and motion. When the pulse is reduced, as it frequently is by this medicine, to 40 beats in a minute, in a horizontal posture, it is quickened to 70 by a sitting posture, and to 100 by rising erect.—On the kidneys and urinary organs this medicine exerts no stimulant effect whatever in a state of

health, although, in certain forms of disease, it prodigiously increases the discharge of urine.

When digitalis is taken in improper quantities it becomes a poison, inducing a train of alarming symptoms like those which follow other narcotics.*

During the last thirty years, foxglove has been extensively tried as a medicine in various diseases. Its power of lessening the frequency of the pulse and irritability of the system, led to its employment in inflammatory disorders, as a substitute for the important remedy of depletion. Some of the principal supporters of its reputation in this respect were Dr. Ferriar, who warmly commended it as a direct remedy in active hemorrhages, and in pulmonary consumptions, and Dr. Currie, who employed it in acute inflammations of the brain, lungs and other viscera. Drs. Beddoes, Darwin, Drake and various others have given ample testimony to its efficacy in consumptive complaints. It has, nevertheless, of late rather lost than gained reputation, and does not justify the warm encomiums originally bestowed on it. It is seldom of much use in phthisis, unless in the primary stage, and even then it does not agree with all patients. To some constitutions, however, in incipient cases, it proves not only palliative, but removes the cough wholly, when given seasonably, and persevered in till its effects on the stomach and head are felt. In some diseases related to phthisis, particularly in chronic coughs, which succeed to catarrh and pneumonia, without actual lesion of the lungs, this remedy is decidedly and strikingly successful.

In dropsy, for which complaint digitalis was revived in modern practice by Dr. Withering, it enjoyed for a time a celebrity equal to that which it possessed in pulmonary consumption. When

* I once knew a patient to take by mistake a table spoonful of the saturated tincture. The accident was speedily followed by violent vomiting and purging, the first of which occurred soon enough to dislodge a great part of the medicine. It was nevertheless attended by total blindness, of twelve or fourteen hours continuance, cold sweats, frequent and long continued syncope, and a hardly perceptible pulse. The patient was partially relieved in twelve hours, and wholly in twenty-four.

we recollect that dropsy, in one or another of its forms, is often the terminating complaint of intemperate, diseased and broken constitutions, and that so many of the cases which occur are actually incurable; it is singular that the most flattering accounts of its success should have been published by a succession of medical writers, whose names are of the highest authority. It is probable that the impaired confidence, which now exists in regard to its diuretic powers, is not so much the result of want of activity in the medicine, as of the too high excitement of expectation respecting it in the first instance. It is undoubtedly, in some cases of dropsy, a remedy of the highest utility, and there is none which, in successful cases, produces a more rapid evacuation of the accumulated fluid. It is oftener successful in dropsy of the anasarca kind, than in that of the large cavities, and it is more likely to afford benefit if preceded by evacuations, particularly purgatives, than if given at once. In favorable cases relief is afforded early, and there is little use in persevering with the medicine beyond a week, if it does not discover its efficacy within that time.

One of the most plausible explanations of the operation of foxglove in discharging the effused fluid of dropsy, is that of Dr. Maclean, who considers that it does not increase the quantity of urine by any stimulating effect upon the kidneys, since it is not diuretic to a person in health; but that, in dropsical cases, it influences the absorbents in such manner as to enable them to take up the effused fluid and throw it into the circulation, from whence it is afterwards removed by the natural excretories. But perhaps it is explanation enough to say, that digitalis cures dropsy by arresting the diseased action by which fluid is accumulated, and allowing opportunity for the excretories to perform their natural functions, in eliminating this fluid from the body.

EXHIBITION. The commencing *dose* of the powdered leaves is one grain, of the tincture from ten to fifteen minims, and of the infusion half a fluidounce. Either of these doses may be gradually increased by a sixth part of its quantity at a time, and given three times a day, until nausea and vertigo ensue from it. Patients, while taking this medicine, require to be seen daily, or

oftener by the physician, on account of their liability to sudden diarrhœa and prostrating symptoms, which require the immediate suspension of the medicine. It is rarely safe to proceed far with the foxglove after the head and stomach have become affected.

DIOSPYROS.

Persimmon.

The Persimmon tree is very common in the middle and western states, and grows also in the southern parts of our country. The bark is bitter, and has been added to our numerous list of native tonics. It is recommended in intermittents and ulcerated sore throats, and may be exhibited in the same manner as Cinchona.

DOLICHOS.

Cowhage.

The *Dolichos pruriens* is a papilionaceous, climbing plant of the East and West Indies. Its pods are covered with stiff, sharp bristles or spiculæ of a venomous nature, which, when rubbed upon the skin, excite a violent and intolerable itching. When mixed, however, with honey or treacle, they are so sheathed as to be swallowed with impunity. These spiculæ have been introduced into practice as an anthelmintic, it being expected that they would exert the same influence on the bodies of worms in the intestinal canal, that they do on the human skin, when applied to it in their dry state. Being inclined to doubt the power of these bristles to withstand the digestive process of the stomach, I formerly made some experiments, with the assistance of a pupil, which have induced a strong doubt of their mechanical efficacy as a vermifuge. It was found that maceration in

warm water for an hour dissolved their virus, and rendered them incapable of exciting the skin. Some portions were enclosed in muslin and given to animals, and after remaining half an hour in the stomach, they were found equally inert. It is therefore improbable, that they can produce much annoyance to worms situated, as these animals usually are, below the stomach. The fact that cowhage does not irritate the stomach or bowels, when its vehicle is digested, might have been a sufficient reason for supposing its efficacy destroyed. The apparent success of some cases, in which it has been employed, is probably owing to the cathartics which have followed its use.

DRACONTIUM.

Skunk Cabbage.

The skunk cabbage is an indigenous plant, very common in wet meadows throughout the United States, and well known for its offensive odour, perfectly resembling that of the animal whose name it bears. Its odour resides in a volatile substance not easily obtained in a separate state, and soon dissipated by heat or by drying. It contains, likewise, an acrid principle like that of the genus *Arum*; also a portion of resin and mucilage.

USES. This plant in small doses is a stimulant and antispasmodic, and in large ones a narcotic. Thirty grains of the powdered root, if freshly prepared, will bring on vertigo, nausea, and frequently vomiting. Age and exposure, however, diminish its activity. In medicine this vegetable has been found of important use in certain forms of asthma and in chronic catarrh, in which diseases it has succeeded, even when the cases had previously been of great obstinacy. It has also been recommended in rheumatism, in hysteria, and in dropsy.

EXHIBITION. A popular form of using this medicine is that of a syrup. This is an uncertain preparation, owing to the volatility of the active ingredients. It is better given in powder,

made from the dried root a short time before it is wanted. Ten grains may be taken at a *dose* in honey or treacle, and the quantity gradually increased as long as the stomach and head remain unaffected.

DULCAMARA.

Bitter sweet.

ORIGIN. The *Solanum dulcamara* is a native plant, common also to Europe, growing naturally in wet places, but sometimes met with in a dry soil. The name of *bitter sweet* is often applied to the *Celastrus scandens*, a much larger, climbing plant, with obscure, greenish blossoms, wholly unlike the fine purple and yellow flowers of the *Solanum*.

QUALITIES. The taste and smell of *Dulcamara* are less nauseous than those of many other species of *Solanum*. They are imparted to both water and alcohol, though the former appears to be the better solvent. The portion dissolved seems to consist chiefly of a kind of extractive matter. A poisonous vegetable alkali, under the name of *Solana*, has been announced to exist in this plant and some other species of *Solanum*.

USES, &c. This plant was once celebrated as a remedy for a great variety of disorders, in which, whatever may have been its merits, it has now given place to more active medicines. Its present reputation rests chiefly on its efficacy in cutaneous diseases. Dr. Crichton and Drs. Willan and Bateman represent its operation as beneficial in psoriasis and pityriasis, but more particularly in leprosy under all its varieties, for which disease it was found peculiarly efficacious. The common form of exhibition is that of the *decoction*; which see. The efficacy of the decoction, taken internally, is increased by employing it at the same time in a stronger form as a lotion to the affected surfaces. The plant, particularly the American variety, possesses considerable narcotic power, on which account its use should be begun with small doses.

ELATERIUM.*Elaterium.*

ORIGIN. The *Momordica elaterium* is a perennial plant growing spontaneously in the south of Europe. The fruit, which is botanically allied to the cucumber and melon, has the curious property of separating itself, when ripe, from its stalk, and ejecting its seeds with great force through an opening in the base, where the stalk was attached. The medicinal property resides chiefly in the juice at the centre of the fruit, and about the seeds. The drug called *Elaterium* in our Pharmacopœia, and which the London College have, with some latitude of application, called an extract, is the sediment which subsides from the juice of the fruit after it has been drawn out. The quantity of genuine elaterium contained in a single fruit is extremely small, as it appears that only six grains were obtained by Dr. Clutterbuck from forty of the cucumbers. The plant might be raised in this country.

QUALITIES. Elaterium is sold in small, thin cakes or fragments of a greenish colour and a bitter and somewhat acrid taste. It is liable to vary in strength, according to the mode of its preparation. If the juice has been extracted with much pressure, the sediment contains portions of the fruit which are comparatively inactive, and which, of course, tend to lessen its activity. Dr. Paris, who has analyzed this drug, reports it to contain, besides water and woody matter, extractive, fæcula, gluten, a bitter principle, and a resinous substance so heavy as to sink in water, to which he gives the name of *Elatin*, and in which he considers the purgative property to reside, although its action is quickened by the presence of the bitter principle. In selecting *Elaterium*, those specimens which have a very dark colour, are compact and heavy, and break with a shining, resinous fracture, are to be rejected as bad.

USES. This drug is one of the most violent cathartics. It was employed by the ancients as a hydragogue in dropsy, in a

form not dissimilar to that used at the present day. It was also used by the Arabians, and in more modern times by Boerhaave, Sydenham and Lister. Quite recently it has been highly recommended in dropsy by some distinguished English physicians, and their practice has been successfully imitated in this country; although the great uncertainty of its operation has repeatedly caused it to be abandoned. It has the peculiar property of not only purging, but at the same time exciting a febrile action, which Lister describes as attended with a throbbing that is felt to the fingers' ends. Orfila found that a large dose, given to a dog, brought on inflammation of the stomach, but when injected in two cases into the cellular texture of the thigh, the rectum was the only part of the canal which became inflamed. Hence he concludes, that the medicine has some peculiar action on that organ.

EXHIBITION. The uncertainty arising from the different preparations of this medicine may be inferred from the circumstance, that Fallopius gave it in doses of a drachm, while Dr. Clutterbuck found one eighth of a grain to purge violently. The strength of any particular parcel ought always to be tested by small doses, before it is ventured on in any considerable quantity. Of the article imported into this country, I have given from one to two grains in a pill three times a day, without any excessive operation resulting from it.

EMPLASTRA.

Plasters.

Metallic oxides, particularly those of lead, have the property of combining with fixed oils, and producing compounds of a peculiar nature. The oils lose their unctuous character and fluidity at common temperatures, and are converted into a thick, tenacious and adhesive substance, to which the chemical name of *plaster* has been given. In pharmacy the term plaster is used in a wider sense, to express various compounds intended for exter-

nal application, which are solid at common temperatures and adhesive at the ordinary heat of the human body; of whatever ingredients they may be composed.

Plasters are employed both in surgery and medicine, with a view both to the mechanical support which they afford, and to the medicinal effect of the ingredients they contain.

EMPLASTRUM AMMONIACI. *Ammoniacum Plaster.*—The union of the vinegar with the ammoniacum produces an adhesive compound, which has had some reputation in scrofulous affections, but is probably not a remedy of much value.

EMPLASTRUM ASSAFÆTIDÆ. *Assafœtida Plaster.*—A very disagreeable application, thought by some to be useful when placed upon the bowels in flatulent colic and hysteria.

EMPLASTRUM FERRI. *Plaster of Iron.*—The name of *strengthening Plaster* has been given to this compound of the Edinburgh College, though there is not much probability that any tonic effect is derived from iron thus applied. Strengthening plasters have little use, except from the mechanical support they afford. In popular language the name is often applied to various irritating plasters used as counter stimulants in local diseases.

EMPLASTRUM HYDRARGYRI. *Mercurial Plaster.*—This is considered a discutient application in various local complaints, particularly in venereal bubo. The mercurial influence it produces is feeble, rarely amounting to salivation.

EMPLASTRUM PLUMBI. *Lead Plaster.*—This is the *Emp. oxidi plumbi semivitrei* of the Edinburgh College, and the *Diachylon* of the old writers. In making this plaster, the only use of the water is to keep the other ingredients from rising to too high a temperature. As the water boils away, more must be added, so as to keep the temperature at about 212°. If, by the accidental consumption of all the water, the temperature of the oil becomes elevated, it is not safe, on account of the explosive forma-

tion of steam, to add any more water till the mixture is cooled again to 212° . At the end of the process the plaster grows white, and should be immediately withdrawn from the fire; for if longer exposed to the heat, it turns of a dark colour, owing to the reduction of the lead or the scorching of the oil.

Lead plaster is of a light colour, heavy and adhesive. It is the basis of the common *adhesive plaster*, and is used alone as a desiccative and discutient application, to cover excoriated surfaces and to disperse slight inflammatory tumours.

EMPLASTRUM PLUMBI SUBCARBONATIS COMPOSITUM. *Compound Plaster of Subcarbonate of Lead*.—From the character of its ingredients, this must resemble the common lead plaster in its medical action. It is known sometimes by the name of *Gautier's plaster*.

EMPLASTRUM RESINOSUM. *Resin Plaster. Adhesive Plaster*.—This plaster is extensively used in surgery, as a connecting medium for divided parts, and a gentle stimulant for ulcers. It forms, in many instances, a substitute for the needle and ligature in retaining the edges of wounds together, and uniting the skin after surgical operations. It is also employed to retain compresses in umbilical hernia, and to contract or draw together the edges of ulcers.

It is important that this plaster should possess the highest degree of adhesiveness, and sufficient solidity to remain firm at the temperature of the body. The plaster directed in the American Pharmacopœia, and taken from that of the Edinburgh College, is not sufficiently firm, at least when made with American resin, to form good adhesive straps. Its tenacity may be much increased if it is made of equal parts of resin and lead plaster, or of three parts of the former to two of the latter. But although these proportions form an excellent adhesive plaster, yet the compound is too stimulating for ordinary cases of ulcers, and, sometimes, even for the cuticle itself. Mr. Baynton, in the treatment of ulcers, employed a compound containing only six drachms of resin to a pound of lead plaster.

Various ingredients, such as turpentine and soft resins, have been used to increase the adhesiveness of plasters ; but, like the other constituents, they are liable to become hard by age and by the action of the litharge. The best rule for securing the adhesiveness of these compounds is, to use them while new, and not to spread them a long time before they are wanted.

EMPLASTRUM RESINOSUM CANTHARIDUM. *Resin Plaster, with Cantharides. Warm Plaster.*—Burgundy pitch acts upon the skin of many persons as a rubefacient, but when united with a small portion of cantharides, as in the present plaster, its activity is very much increased.

ERIGERON CANADENSE.

Canada Fleabane.

This is one of the most common annual weeds of our country, and has spread itself by emigration into most parts of Europe. The leaves and flowers have a peculiar, strong and acrimonious taste. According to Dr. De Puy, it contains not only a volatile oil, but tannin and gallic acid, in considerable quantities. It has been found very serviceable in diarrhœa, both recent and chronic. It operates likewise as a diuretic in dropsical complaints.* The powder, in doses of twenty grains, and the infusion, may be used as diuretics. As astringents, the decoction and extract, in which the acrimony is diminished, are preferable.

ERIGERON PHILADELPHICUM.

Philadelphia Fleabane.

This is also native, and a more showy plant than the preceding. It is diuretic, and has been found a useful palliative in some cal-

* Transactions of the Physico-Medical Society of New-York. I.

culous affections, taken in infusion or decoction. In most parts of the United States, great efficacy is popularly ascribed to a plant bearing the name of *Scabish* or *Skevish*. This is in some places the cultivated Scabious; in others *Oenothera biennis*; in others *Erigeron Philadelphicus*, &c. So great is the uncertainty which belongs to vulgar nomenclature.

ERYNGIUM.

Button Snake Root.

The *Eryngium aquaticum* is a native of the southern states. We are told in Mr. Elliott's Botany, that the root is of a pungent, bitter and aromatic taste. When chewed, it very sensibly excites a flow of saliva. A decoction of it is diaphoretic and expectorant, and sometimes proves emetic. It is preferred by some physicians to the Seneca snake root, which it much resembles in its effects.

ERYTHRONIUM.

Erythronium.

The *Erythronium Americanum* is an emetic in its recent state, producing vomiting in the dose of thirty or forty grains. This property is impaired by drying. The affinity of the plant to *Colchicum*, and some others of known activity, renders it deserving of further investigation. The bulbs should be dug when the leaves first appear, before flowering. A pure fæcula may be obtained from them.

EUPATORIUM PERFOLIATUM.

Thoroughwort.

ORIGIN. The *Eupatorium perfoliatum* is an indigenous vegetable, growing in wet meadows throughout the United States. The whole plant is medicinal, but the leaves and flowers are most active.

QUALITIES. The taste is intensely bitter, accompanied by a flavour peculiar to the plant, but without astringency or acrimony. A kind of extractive matter appears to contain its sensible and medicinal properties, and of this water is an adequate solvent.

USES. The medicinal powers of this plant are, such as its sensible qualities would seem to indicate, those of a tonic stimulant. Given in moderate quantities, either in substance, in cold infusion or decoction, it promotes digestion, strengthens the viscera, and restores tone to the system. Like other vegetable bitters, if given in large quantities, especially in warm infusion or decoction, it proves emetic, cathartic and sudorific. Even in cold infusion, it brings on diaphoresis more readily than most tonics. It is an efficacious article in the cure of intermittents, and is much employed for this use in districts where fever and ague prevail. Cures effected by it appear to have been as speedy as those from any of the medicines in common use. Thoroughwort has been employed in small doses with benefit in other febrile complaints attended with prostration of strength in their advanced stages. Its action upon the skin has acquired for it some confidence in the treatment of cutaneous diseases.

EXHIBITION. As a tonic, twenty or thirty grains of the powder may be given in milk or wine; or two fluidounces of the infusion. When intended to act as an emetic, a strong decoction may be made from an ounce of the plant in a quart of water boiled to a pint. The decoction is a disagreeable, but popular and effectual medicine in catarrhs, rheumatism and febrile attacks. It is powerfully emetic, cathartic and sudorific.

EUPATORIUM TEUCRIFOLIUM.

Wild Horehound.

Many of the species of *Eupatorium*, which nearly resemble *E. perfoliatum* in botanical habit, are likewise similar to it in medicinal properties. The present species is one of this kind. It is tonic, diaphoretic and cathartic, and in small doses sits well on the stomach. It is extensively used in the southern states in the cure of fever and ague.

EUPATORIUM PURPUREUM.

Gravel Root.

This is a taller plant than the species already cited. Its taste is bitter, astringent, and aromatic. I am informed that it operates as a diuretic, and is employed by different country physicians as a palliative in dysury and calculous diseases.

EUPHORBIA IPECACUANHA.

Ipecacuanha Spurge.

ORIGIN. This is a low, tufted plant, growing native in sandy soils in the middle and southern parts of the United States. It was at one time supposed to be the plant, from which the official ipecacuanha is derived.

QUALITIES. The root is very large in proportion to the plant, fleshy, irregular and branched. When dried, it is of a greyish

colour outside, and white within. It is light and brittle, without a ligneous centre, and has about the hardness of cork. To the taste it is sweetish and not particularly unpleasant. It contains a substance of the nature of caoutchouc, which is soluble in ether and precipitated by alcohol; likewise resin, mucus, and probably fæcula.

USES. Most of the species of the extensive genus *Euphorbia* are violent emetics and cathartics. The lactescent juice, which they exude when wounded, is acrid and virulent, so as to blister and ulcerate the skin when externally applied. Taken internally in large doses, they produce the violent symptoms, which are common to other acrid narcotics. The *Euphorbia ipecacuanha* is milder in its operation than many of the other species, and has lately been revived in practice as an effectual emetic. With a view of becoming acquainted with the mode of operation of this plant, I performed a series of experiments on its action, assisted by some medical gentlemen of the Boston Dispensary and Alms-house. These trials have led to the conclusion that this root, in doses of from ten to twenty grains, is both an emetic and cathartic; that it is more active than ipecacuanha, in proportion to the number of grains administered; that in small doses it operates with as much ease as most emetics in a majority of instances. If it fails, however, at first, it is not so safely repeated as many of the emetics in common use. If accumulated in the stomach to the amount of two or three scruples, it finally excites active and long continued vomiting, attended with a sense of heat, vertigo, indistinct vision, and great prostration of strength. Its operation seems exactly proportionate to the quantity taken, and the vomiting is not checked by the powder being thrown off in the first efforts of the stomach.

EXHIBITION. From ten to twenty grains constitute an emetic, to be given at once. If this quantity fails to vomit, it generally purges. It may be quickened by a little tartarized antimony, but ought not to be repeated to the amount of more than twenty-five or thirty grains.

EUPHORBIA COROLLATA.

Large-flowering Spurge.

ORIGIN. The *Euphorbia corollata* is a tall species, with a five-rayed umbel and white flowers. It grows spontaneously in dry fields from Pennsylvania to Carolina.

QUALITIES. The soft, brittle texture of the root, and its sweetish taste, are similar to those of *Euphorbia ipecacuanha*. Its chemical constitution is nearly the same, except that the quantity of resin is apparently somewhat greater.

USES. This is a very active medicine, of the evacuating class, operating in small doses as a cathartic, and in large ones as an emetic. It has been thought to possess about twice the strength of jalap. It exerts its cathartic efficacy in doses of less than ten grains, and if given to the amount of fifteen or twenty, it is as sure to vomit as other common emetics in their proper quantities. The only inconveniences attending these doses, which have come to my knowledge, are, that when given in small quantities, for a cathartic, it is liable to produce nausea; and in large ones, suitable for an emetic, it has sometimes induced a degree of hypercatharsis. But similar inconveniences may occur from jalap and tartarized antimony. The effects which large doses of this root may produce on the nervous system, I have not had occasion to witness. The *Euphorbia corollata*, like many others of its genus, if applied in a contused state to the skin, excites inflammation and vesication. Its volatile particles possess a certain degree of virulence, so that inflammation of the face has been brought on by handling the root. It remains to be ascertained whether the vesicating powers of this and the other species are equally definite and manageable, with those of the more common epispastic substances.

EXTRACTA.

Extracts.

Extracts are preparations of a soft consistence, procured by evaporating vegetable juices or solutions. The term, in its widest sense, includes four kinds. 1.—*Inspissated juices*, prepared by pressing out the juice from recent plants, and thickening it by evaporation. 2.—*Watery extracts*, made by evaporating decoctions of dried or fresh substances. 3.—*Alcoholic extracts*, prepared, in like manner, from alcoholic solutions. 4.—*Compound extracts*, in which more than one menstruum is employed, or more than one article enters into the composition. The foregoing preparations are employed for different substances, according to the state in which they are obtained, the different nature of their active principles, and their comparative solubility in different menstrea.

Extracts should be made in broad, shallow vessels, that the evaporation may take place rapidly. To prevent the extract from being injured by too great a degree of heat, a water bath or steam bath is used, so that the whole evaporation may be conducted under an equal temperature. If the water be saturated with salt, as directed in the Pharmacopœia, it requires a temperature somewhat higher than 212° to make it boil, and the extract will be formed more rapidly. Alcoholic extracts, however, require a lower temperature, and if made in close vessels, with proper receivers, most of the alcohol may be saved by distillation.

The ostensible advantage of extracts over other preparations is, that they are made only from the soluble parts of vegetables, and are free from the inert or ligneous particles. If, therefore, they could be prepared without undergoing chemical changes, they would be among the most valuable preparations, and would present the quintessence, or active parts of medicines, within a very small compass. But extracts, as they are usually formed, do not fulfil this object, and are liable to various objections. It

often happens, that the active parts of a vegetable are of a volatile kind, and are driven off by the heat and exposure used in the process of evaporation. Chemical changes, likewise, take place among the constituent principles, so that an aqueous extract can seldom if ever be wholly dissolved again in the menstruum with which it was originally made. To these may be added another objection, that extracts, even when prepared in the same manner, are seldom uniform in strength; that plants, under certain circumstances, yield much more soluble matter than under others; that the precise degree to which the evaporation should be carried, cannot well be defined in words, and will be differently construed by different apothecaries. It is on this account that no experienced practitioner feels confident in commencing a new parcel of the extract of a powerful vegetable, but is obliged to feel his way in the first instance with small doses.

To obviate the objection, which arises from the use of heat in the formation of extracts, Mr. Barry has introduced a new method of conducting the evaporation at low temperatures, by means of the vacuum produced by the air pump. The expense and tediousness of this process is compensated by the goodness of the product; and extracts thus procured are stated to be much more powerful than those made in the common way.

Extracts should be kept in a cellar, or in close vessels, and occasionally moistened with alcohol.

EXTRACTUM ACONITI. *Extract of Aconite.*—This extract and the four following are inspissated juices. Their properties are the same with those of the narcotic plants from which they are derived. The extract of aconite may be given in the *dose* of half a grain to commence, two or three times a day, and gradually increased until nausea and dizziness supervene.

EXTRACTUM BELLADONNÆ. *Extract of deadly Nightshade.*—This preparation is said to be weaker than the plant in substance. *Dose* one grain, gradually increased to five, in the form of pills.

• **EXTRACTUM CONII.** *Extract of Hemlock.*—This is the most common form in which hemlock is administered. A suitable *dose* for commencing is from one to five grains three times a day, to be increased at every time of taking it, till nausea, weakness and vertigo appear.

EXTRACTUM HYOSCYAMI. *Extract of Henbane.*—Given in the same manner as extract of hemlock, it is narcotic and laxative.

EXTRACTUM STRAMONII. *Extract of Thorn Apple.*—For the properties, see *Stramonium*. The commencing *dose* is about one grain three times a day, to be increased, if necessary, like the foregoing extracts.

EXTRACTUM ANTHEMIDIS. *Extract of Chamomile.*—This and the five following extracts are made by evaporating decoctions. The volatile oil of the chamomile is dissipated in the process, but the bitter property remains. *Dose* ten or twenty grains.

EXTRACTUM GENTIANÆ. *Extract of Gentian.*—This extract is intensely bitter, and is given in *doses* of ten or twenty grains, as a tonic.

EXTRACTUM HÆMATOXYLI. *Extract of Logwood.*—This is a very beautiful, crimson-coloured extract, of an agreeable, sweetish, astringent taste. It is given in diarrhœa in *doses* of from ten to thirty grains.

EXTRACTUM HELLEBORI NIGRI. *Extract of black Hellebore.*—This is seemingly not a judicious preparation of black hellebore, the activity of which is much injured by heat.

EXTRACTUM JUGLANDIS. *Extract of Butternut.*—Extract of butternut is an excellent laxative for habitually costive habits, operating with mildness and ease. *Dose* from ten to twenty-five grains in pills.

EXTRACTUM QUASSIÆ. *Extract of Quassia.*—Quassia imparts its bitterness to water, which quality becomes highly concentrated in the extract. *Dose*, as a tonic, from ten to twenty grains.

EXTRACTUM CINCHONÆ. *Extract of Peruvian Bark.*—In forming this extract, both alcohol and water are employed as separate menstrua, so that all the constituents of bark, which are soluble in either of these fluids, may be extracted. If the evaporation could be conducted so as not to produce chemical changes, this would be the best preparation of bark. But on account of the actual occurrence of such changes, the extract is not found to possess powers at all proportionate to the expense and tediousness of its preparation. The *dose* is from ten to forty grains in pills.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM. *Compound Extract of Colocynth.*—This is an excellent combination of powerful cathartics judiciously prepared and corrected. *Dose*, from five to fifteen grains in pills. Under different variations, it has long been known in the pharmacopœias.

EXTRACTUM JALAPÆ. *Extract of Jalap.*—This extract of the London College contains the soluble parts of jalap, which are extracted either by alcohol or water. It is seldom used in comparison with the powdered substance. *Dose* from ten to twenty grains.

EXTRACTUM PODOPHYLLI. *Extract of May Apple.*—This is prepared in the same way with extract of jalap, and is well calculated to concentrate the active ingredients of the plant. *Dose* from five to fifteen grains. A very good extract of Podophyllum is prepared and sold by the Shakers.

EXTRACTUM SAMBUCI. *Extract of Elder.*—This extract partakes of the nature of a confection, and may be given as a demulcent and laxative in the *dose* of two or three scruples.

*FERRUM.**Iron.*

ORIGIN. No metal is so abundantly diffused in nature as iron. The minerals which contain it, both in its metallic state and combined with sulphur, oxygen and acids, are exceedingly numerous and frequent. Besides its common occurrence in earths and rocks, it is held in solution by mineral waters; it enters largely into the composition of meteoric stones; and it circulates in the blood of animals and the sap of vegetables.

QUALITIES. Pure iron is of a blueish-white colour, a slight taste and odour, of great hardness, malleable, ductile and tenacious. Its specific gravity is 7.70. For its fusion it requires an intense temperature, equal to 158° of Wedgewood's pyrometer. It combines with carbon and forms steel. It has the property of welding at a high heat. It is strongly attracted by the magnet, acquires itself the magnetic power, and in the form of steel retains it permanently.

MEDICAL PROPERTIES AND USES. Iron, in its metallic state, if taken into the stomach, is speedily oxidized, and the decomposition it produces in the water present in that viscus, is evinced by eructations, containing hydrogen gas. Its oxide is also in part dissolved, so that it re-acts on the alimentary substances, and produces a black colour in the fæcal discharges. Iron was formerly supposed to be absorbed in large quantities into the blood, and to afford the basis of the colouring matter contained in that fluid. This opinion has been called in question by later chemists, and the experiments of Brande, Berzelius and Vauquelin, have shewn, that the colouring matter is an animal substance, and not of a metallic nature. Mr. Brande asserts, that the colouring matter, when burnt, affords no more iron than the serum or any other constituent of the blood. Berzelius, who does not agree in this result, was, nevertheless, only able to obtain two or three grains of oxide and subphosphate of iron, by the incineration of 400 grains of pure colouring matter.

It is not unreasonable to suppose, that the great reputation which has been given to iron as a tonic medicine, has been, in part at least, derived from reasoning *a priori*; and from the belief that a substance, which was supposed to enter extensively into the animal composition, and to contribute essentially to the bloom and healthiness of its appearance, must be useful in repairing occasional deficiencies of strength and waste of substance. The powers commonly ascribed to it in medical books, are those of communicating firmness to the animal fibre, when it has become weak and lax, of restoring a florid complexion in the place of a pale one, of raising the pulse, and of generally promoting the healthy functions. These properties, to a certain degree, it may possess. Yet I cannot but believe, that the tonic powers of iron have been somewhat overrated, and that conclusions have been drawn rather from what it should, than from what it actually does effect. There is no doubt that some of the *salts* of iron are astringent and considerably stimulant. But the simpler preparations appear to me to be rather inert medicines, and all of them are tonics of a secondary class. No physician relies on chalybeates to raise his patient from any sudden prostration or dangerous debility, such as that produced by fevers in their advanced stage. And in cases of chronic relaxation, to which iron is considered as particularly adapted, it is no doubt very often given, for a great length of time, without any apparent benefit. I cannot but suspect, that in diseases of debility, where iron is recommended, the merit of cures, which occasionally take place, belongs in a great measure to the invigorating regimen, the free exercise, open air and cold bath, which are so generally prescribed at the same time.

The principal complaints, in which iron is employed, are chlorosis and amenorrhea, dyspepsia, hypochondriasis, hysteria, leucorrhœa, gleet, paralysis, scrofula and rickets. These are all diseases of a chronic nature, the cure of which is generally slow, is occasionally the work of time alone, or is left unsettled among a multitude of remedies. One thing is certain, that in these obstinate diseases, it is by no means uncommon for all remedies to fail, and from this reproach iron cannot plead an exemption.

Although the oxides and carbonates of iron are to be regarded as tonics of a secondary class, yet they have the advantage of being perfectly innocent, and may be taken in moderate quantities, for any length of time, without injury. In large doses, however, or in inflammatory cases, they may occasion anxiety, oppression, and pains in the head, stomach and bowels.

EXHIBITION. Iron is administered, according to the indication to be fulfilled, in the form of one or other of its preparations; which see.

FERRI LIMATURA PURIFICATA.

Purified Filings of Iron.

This is the common form, in which metallic iron is administered; but as the filings procured from workshops cannot be wholly purified by the magnet from extraneous particles, which happen to adhere to them, it is better to make them at once, by filing a piece of clean, soft iron.

FERRI OXIDUM RUBRUM.

Red Oxide of Iron.

This preparation requires to be washed with water, to free it from portions of deliquescent sulphate, and then dried upon bibulous paper. It is a subtonic, but not much used, unless as a pharmaceutical agent.

FERRI CARBONAS PRÆPARATUS.

Prepared Carbonate of Iron. Rust of Iron.

This article is a peroxide of iron, combined with a portion, greater or less, of carbonic acid. It is of a well-known, red

colour, a somewhat styptic taste, and is sparingly soluble in water. It is commonly reputed to be tonic and emmenagogue, but is not entitled to very high confidence in these respects. Administered in large doses, it has been highly commended by Dr. Carmichael in cancer, and more lately by Mr. Hutchinson in tic douloureux. The last writer thinks that, to insure its full effect, it should be given in *doses* of two scruples or a drachm, two or three times in a day.

FERRI CARBONAS PRÆCIPITATUS.

Precipitated Carbonate of Iron.

This article is said to consist of protoxide, peroxide and subcarbonate of protoxide of iron, in various proportions. It is a chocolate-brown powder, with a somewhat styptic taste. As it resembles the preceding article in its effects, it may be considered as superfluous.

FERRI ACETAS.

Acetate of Iron.

This preparation of the Dublin College is not much in use except to form the *tincture* of acetate of iron.

AMMONIÆ & FERRI MURIAS.

Muriate of Ammonia and Iron.

This composition requires to be made by a quick heat, and, after trituration, to be kept in glass-stopped bottles. It is, how-

ever, very liable to vary in its character, and is not much used. *Dose* from two to ten grains, as a tonic and aperient.

FERRI PHOSPHAS.

Phosphate of Iron.

The protophosphate of iron, produced in the process of the Pharmacopœia, is a blue, insoluble and nearly insipid powder. It has been given in various diseases of chronic debility, such as dyspepsia, amenorrhea, scrofula, rickets, &c. in *doses* of from ten to forty grains. It has excited a considerable share of attention in this country, but my own observations have not hitherto led me to repose more confidence in it than in other chalybeates.

FERRI PRUSSIAS.

Prussiate of Iron.

Common Prussian blue is introduced under the above name into the Pharmacopœia, being the material from which Prussic acid is obtained. It is a combination, according to Mr. Porrett, of the Ferrocyanic acid with iron, containing, as it is usually prepared, alumine and various impurities. Prussian blue is commonly made by calcining ox-blood with potash, dissolving the soluble parts of the residue in water, and adding to this solution a definite quantity of alum, and green vitriol or sulphate of iron. A dark greenish precipitate is formed, which, when washed with muriatic acid to remove the superfluous oxide of iron, assumes a beautiful blue colour. It is extensively used as a pigment.

FERRI SULPHAS.

Sulphate of Iron.

ORIGIN. The impure sulphate of iron, which forms the *green vitriol* or *copperas* of commerce, is generally procured by the spontaneous oxidizement of iron pyrites, and subsequent lixiviation and evaporation. As it is usually contaminated by the presence of other metals and foreign substances, the sulphate of iron, intended for medical use, should be formed immediately from its constituents by dissolving soft iron in diluted sulphuric acid, and evaporating till crystals are formed.

QUALITIES. These crystals are transparent, green, rhomboidal prisms, *soluble* in two parts of cold, and in less than their own weight of boiling water, and insoluble in alcohol. They have a strong, styptic, acidulous taste. They effloresce in the air, and, when exposed to heat, undergo aqueous fusion. At a high temperature, the acid is driven off, and a red peroxide of iron is formed, which is the *colcothar* of commerce. Sulphate of iron is precipitated from its solutions by alkalies, various alkaline salts, and others, the bases of which form insoluble compounds with sulphuric acid. Such salts are, therefore, its incompatibles.

USES. Sulphate of iron is strongly astringent, and commonly considered tonic. It has been found one of the most useful medicines in menorrhagia and leucorrhœa, and if there is no active local inflammation attendant on these diseases, we have few medicines more entitled to confidence.

EXHIBITION. Its usual *dose* is from one to four grains in a pill. Larger quantities are apt to excite nausea, and pain in the stomach and bowels.

FERRI TARTRAS.*Tartrate of Iron.*

This preparation, taken from the Dublin College, is apparently a tartrate of iron and potass, unless it should appear that the supertartrate of potass used in the process performs the part of a simple acid, as it does in the formation of tartarized antimony. The salt is of a brownish-green colour, a slightly styptic taste, very soluble in water, and somewhat deliquescent in the air. It has been preferred to other chalybeates, in certain cases, on account of its mild taste, ready solubility, and supposed diuretic power. *Dose*, from ten to thirty grains, dissolved in distilled water.

LIQUOR FERRI ALKALINI.*Solution of Alkaline Iron.*

The great number of preparations of iron already detailed, are sufficient to render the present one superfluous. The difficulty of preparing it with uniformity, or of exhibiting it without decomposition, are sufficient reasons for the neglect which has commonly attended it. Although retained in the London Pharmacopœia, it has very few advocates at the present day. *Dose*, half or a whole fluidrachm.

FICUS.*Figs.*

ORIGIN. The fig tree is a native of Asia, but was introduced into Europe in the early ages. It succeeds well in the southern

parts of the United States, particularly about New Orleans. The structure of the young fruit is very curious, being a hollow receptacle, with the male and female flowers lining its inside.

QUALITIES. Dried figs have a peculiar, sweet taste, and abound in sugar and mucilage.

USES. They are highly nutritious, and were much used as food by the ancients. They were particularly used as the preparatory diet of the Athletæ. To most persons they are moderately laxative, but in large quantities produce flatulence and griping. This effect may be, in a great measure, obviated by taking the internal portion only, and rejecting the skin. Figs enter into some demulcent and laxative preparations, and are used as topical applications to promote suppuration.

FÆNICULUM.

Fennel.

The *Anethum fœniculum* is a biennial, umbelliferous plant of Europe, easily cultivated in gardens. The seeds have a warm, aromatic taste, depending on a volatile oil, and less agreeable than that of caraway and anise. They are used as a stomachic and carminative.

FRASERA.

American Columbo.

The *Frasera Walteri* of Michaux is a tall, rank, perennial plant, growing spontaneously in the southern and western parts of the United States. It is the *Swertia Frasera* of Smith in Rees' Cyclopaedia. The root, which is large and fleshy, has a considerable degree of bitterness, and, when cut in slices and

dried, has some resemblance to the imported columbo. Owing to its comparative cheapness, it has been substituted in druggists' shops for columbo, to which it is incomparably inferior in bitterness. (*See Columbo.*) It is, however, an article of considerable tonic power, and, when fresh, is said to be emetic and cathartic.

GALBANUM.

Galbanum.

The *Bubon galbanum* is an umbellate plant of Africa and Syria. The gum resin is the concrete juice, procured by cutting across the stem near the root.

QUALITIES. When of good quality, it is in ductile masses composed of distinct, whitish tears, agglutinated together by a pale-brown, yellowish substance. The odour is fetid, and the taste bitter and acrid. It is partly soluble in water, and partly in alcohol, and appears to contain gum, resin, extractive and volatile oil.

USES. It possesses the properties common to the fetid gums, and is considered stimulant, antispasmodic and expectorant. Externally it is sometimes employed in plasters to promote suppuration. Its *dose* is from ten grains to a drachm.

GALLÆ.

Galls.

ORIGIN. Most species of oak, when stimulated by the puncture of an insect, and the deposition of its egg, produce a kind of spherical excrescence, which serves as the habitation and food of the young larva when hatched. These excrescences are known by the general name of *galls*, and are produced on various parts

of the trees by different insects of the genera *Cynips* and *Diplolepis*. The best galls, and those which predominate in commerce, are brought from Smyrna, Aleppo and the neighboring countries. The Edinburgh College considers them as produced on the *Quercus cerris*, a tree growing in the south of Europe. The French traveller Olivier informs us, that the Asiatic galls are the product of a species of oak, which he names *Quercus infectoria*, and that the puncturing insect is the *Diplolepis gallæ tinctoriæ* of Geoffroy. Both the insect and the gall have been observed in France.

QUALITIES. Good galls are round, of a dark colour, and studded with tubercles. They are of various sizes, under that of a cherry. They are hard, brittle, and exhibit an irregular and partly resinous fracture. Their taste is highly astringent, and somewhat bitter and acrid. Those which have been perforated by the insect are of an inferior quality, their central portion being consumed. The *chemical* constituents, which give to galls their chief value, are tannin and gallic acid. Besides these, they contain, according to Davy, extractive and mucilage; according to Branchi, a concrete, volatile oil; and according to Braconnot another acid, which he calls *ellagic* acid. Chemists, however, are not agreed as to their entire composition. It is obvious, that the presence or absence of the larva, as well as its stage of growth, must materially affect the analysis.

Most metallic salts produce precipitates with infusion of galls, consisting of the metallic oxide, tannin and gallic acid. It is questionable how far the astringency of the galls is affected by such combinations. The sulphuric and muriatic acids, lime water, and the alkaline carbonates, also, occasion precipitates. Gelatin and starch combine immediately with the tannin of the galls.

USES. Galls are among the most powerful vegetable astringents. They are sometimes given internally in *doses* of a scruple; but their chief medicinal use is as a local remedy in the form of gargles, and in the *ointment*; which see. On account of the purple or black colour, which they strike with salts of iron, they are extensively consumed in dyeing and ink making. For the latter purpose, no substitute can be safely used instead of them.

GAMBOGIA.*Gamboge.*

ORIGIN. The *Stalagmitis cambogioides*, a tree of Siam and Ceylon, affords the common gamboge of commerce. The yellow juice of this tree is collected in drops by breaking off the young shoots and by wounding the bark, and is afterwards dried and formed into rolls. The *Garcinia cambogia* of Willdenow, and some other plants, afford, likewise, a juice, from which a species of gamboge is prepared.

QUALITIES. Gamboge is in solid masses, of a dull orange colour, which turns to a most brilliant yellow when moistened. It has little taste, unless held a long time in the mouth, when it discovers some acrimony. When heated it melts, and if the heat be increased, it burns with a white flame, leaving a light, porous coal. Alcohol dissolves nine tenths of its substance, and sulphuric ether six tenths, producing tinctures of a bright golden yellow. It is soluble in strong solutions of pure ammonia and potass, giving them an orange-red colour. The watery solution of gamboge contains about two thirds of the substance, but remains turbid. The addition of alcohol does not occasion a precipitate, but, on the contrary, renders the solution clear. The solution is not readily affected by any of the metallic salts. About one fifth of gamboge is supposed to consist of gummy, and four fifths of resinous parts.

USES. Gamboge is a very powerful cathartic, and is usefully employed in combination with other articles of its class. When given alone, in a full dose, it is apt to excite vomiting, on account of its ready solubility in the stomach. It has long been employed as a drastic purge in cases of tænia, and also as a hydragogue in dropsy, combined with squills and supertartrate of potass.

EXHIBITION. Practitioners are not agreed as to the best mode of exhibition for this article; some preferring the solution, others the pill. It is least apt to vomit when given, in combination with

other cathartics, in small doses, separated by intervals. From three to six grains form an active purge. Doses considerably larger have been given.

In the arts, gamboge is much prized as a yellow pigment in water colours, and an ingredient in lacquers for polished metals.

GAULTHERIA.

Partridge Berry.

The *Gaultheria procumbens* is a well-known, creeping evergreen, found in woody and mountainous tracts throughout the United States. Its taste is astringent and aromatic, and has been compared to that of orange flowers. It exactly resembles that of black birch (*Betula lenta*.) The medical properties of this plant are not unlike those of cinnamon, being a warm, aromatic astringent, particularly useful in the secondary stage of diarrhœa. It is popularly considered an emmenagogue. The *dose* may be one or two scruples; but a tincture and infusion are more convenient forms. The volatile oil of this article is officinal.

GENTIANA.

Gentian.

ORIGIN. The *Gentiana lutea* is a perennial plant of Europe, growing on the Alps, Appenines and Pyrenees. Its roots form the gentian of commerce, and are brought to this country in pieces of various length and shape, twisted and wrinkled, and covered with a brownish-grey cuticle.

QUALITIES. These roots have an intense and durable bitter taste. They contain resin, bitter extractive, a portion of volatile oil, and tannin; likewise some mucilage. Proof spirit, or diluted

alcohol, is the best menstruum. A substance called *gentiana*, in some respects analogous to the vegetable alkalies, has been elicited from gentian. It does not, however, restore vegetable blues previously reddened by an acid, and is not poisonous. It is of a yellow colour, crystallizes in very minute needles, is soluble in alcohol, but sparingly so in water.

ADULTERATION. A root possessing narcotic properties, supposed to belong to some species of aconite, has been repeatedly observed among parcels of gentian. It is known by its whitish colour, and its comparative want of bitterness.

USES. This drug is universally known as a powerful, bitter tonic. It is chiefly used with a view to excite the stomach, having apparently less influence on the system at large than some other medicines of its class. Given in small doses, it strengthens the appetite, and assists digestion. In large doses it excites vomiting and purging, but is too unpalatable to be given for these purposes. Its chief employment is in dyspeptic complaints, though it has been given in most of the common diseases of debility.

EXHIBITION. A *dose* of the powder, sufficient to display its tonic effect, is from ten to twenty grains. The *tincture*, however, is more commonly used.

GENTIANA CATESBÆI.

Blue Gentian.

Of various native species of gentian, which our country affords, this approaches most nearly to the officinal plant in bitterness. Its virtue appears to reside chiefly in an extractive principle, soluble in water and alcohol. It has also a little resin. Like the imported gentian, it is an active tonic, invigorating the stomach, and giving relief in complaints arising from indigestion. It appears to possess much reputation in the southern states, to which its growth is principally confined.

GERANIUM.

Cranesbill.

ORIGIN. The *Geranium maculatum* is a native plant, common about woods and fences, and conspicuous for its large, purple flowers in May and June.

QUALITIES. The root is horizontal, nearly as large as the little finger, tortuous and full of knobs. To the taste it is a pure and powerful astringent. It abounds with tannin, which is imparted in great quantities both to the tincture and watery solution, and appears to be the basis of its medicinal efficacy.

USES AND EXHIBITION. It is applicable to all the purposes of vegetable astringents, being surpassed by very few articles of that class. In various debilitating discharges, particularly from the bowels, it has afforded relief, when the disease has been of a nature to require astringent medicines. In aphthous eruptions, and ulcerations of the mouth and throat, a strong decoction has been found beneficial as a gargle. A dose of the powder is twenty or thirty grains, and of a saturated tincture from one to two fluidrachms. The extract of this root is a very powerful astringent, and may be substituted for kino and catechu.

GEUM.

Water Avens.

The *Geum rivale*, which affords this root, is common to Europe and America. With us it grows in wet, spongy meadows, and is made remarkable by its dark nodding flowers. It is called by the common names of *Chocolate root* and *Evan root*, the last being a corruption of the English name *Avens*. This root is one of

our strongest astringents. It is a popular remedy in hemoptysis, but is improper in the active forms of that disease. In uterine hemorrhage, and in leucorrhœa, it is a more appropriate medicine. In diarrhœa it is also administered with very good success, provided the bowels do not require evacuating medicines. Kalm tells us, that it was largely used in the state of New York for the cure of intermittents; and it appears that the same practice has been pursued in the north of Europe with tolerable success. In this disease, however, the Geum is inferior to the tonic barks. The *dose* is one or two scruples three times a day; but a decoction is a more common form of exhibition. Some dyspeptic and hectic patients take a weak decoction as a substitute for coffee and tea.

GILLENIA.

Gillenia.

ORIGIN. The *Gillenia trifoliata* is a native, perennial plant, more generally known to cultivators of the American *Materia Medica* by the Linnæan name of *Spiræa trifoliata*. It grows in and about woods, in light soils, throughout most parts of the Union, excepting the eastern states.

QUALITIES. The root is much branched and knobby. It consists of a woody portion invested with a thick bark, which, when dry, is brittle, and very bitter to the taste. The predominant soluble ingredients appear to be, a bitter extractive matter and resin. When boiled in water, it imparts to it a beautiful red, wine colour, and an intensely bitter taste. The tincture deposits an abundant resinous precipitate on the addition of water.

USES AND EXHIBITION. This article is one of the most prominent indigenous emetics, resembling ipecacuanha in its operation, but requiring a larger dose. It sometimes fails to produce vomiting, especially if the portion used has become old. Thirty grains of the bark of the root, recently dried and powdered, are a suitable *dose* for an emetic. In doses so small as not to excite

nausea, it has been thought useful as a tonic. The *Gillenia stipulacea* of the western states possesses properties similar to those of this species.

GLYCYRRHIZÆ RADIX.

Liquorice Root.

The liquorice plant grows native in the south of Europe, and may easily be cultivated in almost any part of the United States. The root is perennial, and, when raised in gardens from seed, it is of the proper size to be dug in the fall of the third year.

QUALITIES. The dried root has a sweet, mucilaginous, rather sickly taste. It contains a peculiarly modified saccharine matter, which does not easily crystallize nor ferment, on which last account it is sometimes preferred for imparting a sweet taste to malt liquors, being less subject than sugar to turn sour. It also contains mucus. Alcohol extracts the saccharine parts; boiling water both the saccharine and mucilaginous. The powder has a brownish-yellow colour, and is sometimes adulterated with flour and other foreign substances, which may be distinguished by the weakened or altered taste and colour.

USES. The medicinal properties of this root are those of a simple demulcent. It is given in catarrh, strangury, nephritis, &c. in various compound formulæ. The dry powder is a convenient medium for rolling pills.

GLYCYRRHIZÆ EXTRACTUM.

Extract of Liquorice.

This extract is prepared from the preceding article, in the countries where it grows, by evaporating the decoction of that root. It occurs in its crude state and refined; the latter form being given it by re-dissolving, straining and evaporating the ori-

ginal extract. This article is moderately hard, of a brownish-black colour and sweet taste. It is applied to the same purposes as the root ; but being entirely soluble, it is more convenient to be chewed in catarrhal affections.

GRANATUM.

Pomegranate.

The pomegranate tree is a native of Barbary, and is cultivated in the south of Europe and in most warm climates. The rind of the fruit is astringent, and is given in colliquative diarrhœa, and to check the night sweats of hectic fever. It is applied in decoction as a gargle in sore throats, and an injection in leucorrhœa. *Dose*, in powder, half a drachm.

GUAIACI LIGNUM.

Guaiacum Wood. Called Lignum Vitæ.

ORIGIN. The tree, which produces this wood, grows in the West Indies and tropical parts of America. It attains to the height of forty feet, and its trunk is four or five feet in circumference.

QUALITIES. Lignum vitæ is brought in logs or masses, consisting of a dark-greenish heart, covered with a yellowish alburnum. It is exceedingly hard, sinks in water, has little smell, except when heated, and possesses a bitter and pungent taste.

USES. The medicinal properties of the wood are principally derived from its resinous particles, and resemble those of the following article. It is, however, used as an ingredient in some decoctions, to which it imparts a certain portion of extractive matter of a tonic and stimulating nature. It was formerly much celebrated as an antisiphilitic. The hardness and solidity of lignum vitæ render it of great importance in the mechanic arts.

GUAIACI RESINA.

Resin of Guaiacum.

ORIGIN. This is a product of the same tree with the foregoing article, and is obtained in different ways. The purest sort exudes in the form of tears, and concretes on the trunk. The more common kind is obtained by making incisions in the trunk, from which the juice flows; or by boring holes longitudinally through the logs, and placing one end upon a fire, so that the resin, as it melts, may run out and be collected at the other extremity.

QUALITIES. This substance is a kind of resin, agreeing with other substances of that class in its leading properties, but differing in a few peculiarities, which have induced some chemists to consider it as a substance *sui generis*. It is of a greenish-brown colour, brittle, fusible with a moderate heat, and inflammable. Its powder is of a pale grey, but becomes green on exposure to the air and light, a change which Dr. Wollaston ascribed to the agency of light, and Mr. Brande to the absorption of oxygen. Water dissolves nearly one tenth part of common guaiacum, which part proves to be extractive in a state of mixture with the resin. Alcohol dissolves 95, and ether 40 parts in a hundred. Alkalies and their carbonates in solution dissolve it. The strong mineral acids dissolve it in greater or less quantities, and the solution in nitric acid, on evaporation, affords oxalic acid. Guaiacum, then, differs from pine resin in changing its colour on exposure to air and light, and in producing oxalic acid from its solution in the nitric.

USES. The resin of guaiacum is a strong stimulant, diaphoretic and purgative. In substance it has little taste at first; but when held long in the mouth, or swallowed, it stimulates the tongue and fauces in a powerful manner. It excites a sense of warmth in the stomach, and by degrees in the whole system, bringing on a free perspiration, if the body is kept externally warm; or, under different circumstances, exciting the kidneys,

In large quantities it invariably purges. Guaiacum is one of the most efficacious remedies in chronic rheumatism, and hardly yields to any internal medicine in that complaint. In the secondary symptoms of syphilis, which attend the advanced stages of that disease, and remain after the full action of mercury ; such as pains in the bones, attended with a thickened state of the periosteum and ligaments, indolent ulcerations, &c. it is a remedy of decided utility. It has been also employed with benefit in cutaneous diseases, and in various local pains or inflammations partaking of a rheumatic nature.

EXHIBITION. The best mode of administering guaiacum is in minute powder mixed with jelly or mucilage. In chronic rheumatism, from a scruple to a drachm should be taken three times a day, combined, if necessary, with a third or half a grain of opium to moderate purging. This form is preferable to that of the tincture, which throws down an adhesive precipitate when mixed with any watery vehicle.

HÆMATOXYLON.

Logwood.

ORIGIN. As its specific name indicates, the logwood tree is a native of Campeachy. It also grows about the Bay of Honduras, in some parts of South America, and the West India Islands. It is a prickly tree, and proves very troublesome to the planters by its rapid multiplication.

QUALITIES. The heart-wood is compact, heavy, of a deep red colour, and a sweetish, astringent, and rather pleasant taste. Water and alcohol extract its colour, but distilled water acts less readily than common water, in which salts are present. Alkalies deepen the colour, while acids change it to yellow. Logwood, according to Chevreul, contains a volatile oil, tannin, two kinds of colouring matter, one of which is soluble in water and alcohol, the other in alcohol only.

USES. Logwood is only useful as a mild astringent and a colouring drug. Some practitioners employ it in complaints arising from laxity of the bowels, but its use has never been extensive. As a colouring material in the arts, its properties are well known.

HELLEBORUS FÆTIDUS.

Bearsfoot.

This is an European plant, having a fetid odour, and a bitter and highly acrid taste. It is strongly emetic and cathartic, and so uncertain as not to be always safe. It is sometimes used as an anthelmintic, in *doses* of from six grains to a scruple.

HELLEBORUS NIGER.

Black Hellebore.

Black hellebore is a native of the mountainous parts of southern Europe. The root is irregular, knotted, black without and whitish within. It has a bitterish, acrid taste, leaving a durable sense, like that of excoriation, upon the tongue. The acrimony is of a volatile nature, is impaired by age, and is retained by the distilled water. Its medicinal powers are communicated to both water and alcohol, but most to the latter. By late experiments it appears, that the activity of black hellebore resides chiefly in the volatile matter. Black hellebore is a drastic purgative, formerly much celebrated in obstinate chronic diseases, particularly in mania and dropsy. The ancients considered hellebore a specific for madness; but the species which they employed was probably the *H. orientalis*. Black hellebore, in small doses, is considered a useful emmenagogue. The root, as it is kept by druggists in this country, is often impaired by age,

and sometimes altogether inert, as I have had occasion to witness. Of the freshly dried root, ten or fifteen grains purge actively, and two or three may be given as an emmenagogue or alterative.

HERACLEUM.

Masterwort.

The *Heracleum lanatum* is one of our largest native umbellate plants, growing frequently to the height of a man, with a stalk more than an inch in thickness. Its taste is strong and acrid. The bruised root or leaves, externally applied, excite rubefaction. Internally used, this article has been recommended in epilepsy. It appears to me to possess a virose character, and should be used with caution, especially when gathered from a watery or damp situation.

HEUCHERA.

Alum Root.

The *Heuchera cortusa* of Michaux, is a native plant, growing in woods from New England to Carolina. The root is one of the strongest vegetable astringents. As such, it has been employed in various complaints, to which astringents are adapted, and favourable reports are made of its operation. Hitherto it has been more known as an external application than as an internal remedy.

HORDEUM.

Barley.

As in most of the *Cerealina*, which have been cultivated from remote antiquity, the native country of barley is uncertain. It is

now raised in the northern parts of Europe for bread, and in more temperate climates as a material from which malt liquors and ardent spirits are obtained. The principal constituent of this grain is *fæcula* or starch, with which are united small portions of gluten, sugar, oil, and traces of various other substances. The amount of gluten is not sufficient to give the degree of tenacity requisite for light or fermented bread, like that produced by wheat and rye. Hence it is seldom used for bread, when better grains can be obtained. *Pearl barley*, which is kept by the apothecaries, is the internal portion of the seed, deprived of its rough, external coat by grinding, and brought to the state of round, smooth, pearl-coloured grains. From the nature of its constituents, it is almost wholly soluble in boiling water. The decoction, or, more properly, solution, is a useful demulcent, and a nutritious and inoffensive diet for the sick.

HUMULUS.

Hop.

ORIGIN. The hop vine is apparently a native of America, as well as of Europe, being found wild in remote and uncultivated parts of the interior, even upon the banks of the Mississippi and Missouri. The fruit is a kind of cone or strobile, which, as the female plant is often cultivated alone, is in such cases destitute of seeds.

QUALITIES. Hops have an aromatic, heavy odour, and a strong, bitter taste. The bitter quality resides in a yellow powder, which is secreted in the form of transparent dots, of a resinous appearance, at the base of the scales of the cone. This powder may be separated by rubbing and sifting. It is moderately adhesive, when warm, inflammable and very bitter. According to Dr. Ives, it contains resin, wax, extractive matter, and some other substances. It is the seat of all the important properties of the hops, and may be substituted for them with much advantage in

an economical point of view. Alcohol is its most perfect solvent, though water extracts its bitter principle.

USES. Hops have long been an ingredient in malt liquors, on account of the agreeable flavour they communicate, and also from a preservative quality, which they are supposed to exert in preventing acescency in these liquids. In such combinations, as well as in more simple fermented decoctions, they are tonic and salubrious. Besides the bitter and tonic property, which is communicated to water, hops contain a certain narcotic property, which resides in the resinous part, and is extracted by alcohol. It operates as an anodyne and soporific, but in a much more feeble degree than opium. It is very useful in the nervous weakness and watchfulness which attend hysteric affections. The powder of hops, if taken in the *dose* of a scruple, sometimes produces nausea and purging.

HYDRARGYRUM.

Mercury.

ORIGIN. Mercury, or quicksilver, is produced in greatest abundance by the mines of Germany and Spain in the old continent, and of Peru in the new. It is occasionally found native in its fluid state, but more frequently in combination with other metals, with sulphur, with oxygen and acids.

QUALITIES. It remains liquid at common temperatures, with a lustre resembling that of melted lead. It becomes solid at $39\frac{1}{2}^{\circ}$ below the cypher of Fahrenheit, assumes a crystalline texture, and is ductile and malleable. At 660° it boils, and may be distilled in close vessels without alteration. While fluid, its specific gravity is 13.568. It evaporates slowly at lower temperatures than are necessary for its active volatilization. It is oxidized by agitation in the air, and still more by air and heat. It is dissolved by the strong acids, and unites with other metals, forming alloys which are called amalgams.

ADULTERATIONS. The facility with which several of the cheaper metals are dissolved by mercury, very frequently leads to fraudulent adulterations. Lead, bismuth and tin are often found in combination with the mercury of commerce. Where they exist in any considerable quantity, they cause the surface readily to become dull and covered with a film. They also impair the fluidity of the mercury, so that its globules easily lose their spherical shape when in motion. Besides the appropriate tests of these substances, they can always be discovered by distilling portions of the mercury, at the end of which process the adulterating metals will be left behind.

MEDICAL USES. Mercury, in its crude state, has little medicinal effect, when taken internally. It is principally operative in the form of its combinations hereafter to be spoken of. It is said to have been given pure to the extent of two or three pounds, without injury or visible effect. But such impunity does not always attend upon large doses, the metal sometimes remaining in the bowels until it forms combinations capable of acting with great violence on the system. The principle upon which crude mercury has been given, viz. that of forcing a passage through the bowels, in cases of constipation, by its specific gravity, is very absurd; since, from the convoluted and circuitous course of the intestines, the gravity of the metal must retard its passage in one part, as much as it facilitates it in another. The fumes of mercury, produced either by the partial evaporation of the metal, or by the elevation of its oxidized parts in the form of dust, are very active. Persons, who work in quicksilver mines, are liable to various diseases, and whole crews of vessels have been salivated in consequence of mercury getting loose and running about the holds.

Although crude mercury is scarcely given in modern practice; yet, as there are certain general effects in a degree common to mercurial medicines, the present is the most proper place for their consideration. Mercurial medicines are, generally speaking, universal, permanent and powerful stimulants. They increase the force and frequency of the pulse, and produce a kind of inflammatory diathesis, indicated by a coat of coagulating lymph on the

surface of blood drawn from a vein. They excite the whole glandular apparatus, augmenting the quantity, and frequently altering the quality of the secreted fluids. When their use is continued for a certain length of time, their action falls particularly upon the mouth and salivary glands. The gums become gradually tender and swollen, the teeth painful and apparently loosened or started from their sockets, while the parotid and sub-maxillary glands are enlarged and tender to the touch. At length these glands take on an increased action, and large quantities of saliva with mucus are discharged from the mouth, the quantity often increasing until it amounts to several pints or more in a day. The inside of the mouth becomes sore and partially excoriated, or covered with little ulcers; the tongue swollen so as to render speech difficult and inarticulate; and in violent cases it is protruded from the mouth. During salivation, the breath exhales a peculiar, offensive odour, usually called the mercurial fætor. To these symptoms are added a depression of strength, lassitude, and an increased sensibility to annoyance from slight causes. After the mercury has been suspended, in a certain time, which varies with the circumstances and constitution of the patient, the effects begin gradually to abate, the secretion of saliva diminishes, the swelling and soreness of the mouth subside, and the most troublesome symptoms disappear; leaving, however, a tenderness of the gums, a debility of the system, and a quick, feeble pulse, for sometime after.

Constitution, age and sex have a great effect on the susceptibility of the system to the mercurial stimulus. Some persons are unintentionally salivated in a short time from a small and unsuspected quantity of mercury, while others cannot be affected by the long continued use of large quantities under every possible mode of introduction. In general, females are more liable to be salivated than males. A great part of the cases, which prove severe, or suddenly rise to an unmanageable height, beyond the calculations of the practitioner, are those of females. In these subjects, therefore, some caution is requisite in the use of common cathartics containing calomel, lest by its amount or improper repetition, we produce unnecessary ptyalism. Children are less subject to

the mercurial action than adults, and, although calomel is often given freely to infants, and its use continued for some time, yet we rarely hear of a child under two years old being salivated. Although the medicine in them acts readily upon the bowels, it seldom affects the mouth. There are limits, however, to be prescribed for the use of mercury, even in children; for instances have occurred of the most violent salivation, attended even with sloughing of part of the face, where mercury has been injudiciously continued in large quantities. In cases of the venereal disease, occurring in infants who take it from their mothers or nurses, it is found sufficient for the cure of the disease, that the mercurial influence should be introduced through the medium of the mother's milk. In these cases the same mercury, which produces the constitutional symptoms necessary for the cure of the mother or nurse, at the same time effects a cure in the infant at her breast.

The use of mercury in diseases is extensive and important. Independent of the operations peculiar to different preparations of the metal, and which are noticed in another place; its general influence, when gradually introduced in the form of a *mercurial course*, is undoubtedly one of the most powerful resources in the hands of physicians. A mercurial influence upon the system may be obtained by a persevering use of almost any of the milder preparations of the medicine, yet some of them produce it more speedily than others. It is known to have taken place by the appearance of ptyalism, or soreness in the mouth, yet this effect is the measure only, and not the object of a mercurial course; and in many cases the cure of diseases is effected without pushing the medicine to salivation.

The individual diseases, to the treatment of which mercury is applied, are exceedingly numerous. *In general* it is safe to say, that chronic inflammations, especially those of the viscera; likewise acute inflammations, which depletion and blisters have failed to remove; are proper subjects for a mercurial course, so long as there is a chance for their resolution remaining.

In regard to the mercurial practice in simple fever, much diversity of opinion has prevailed. It has been highly commended

in the fevers of warm climates, which are of the kind commonly called bilious, or attended with particular derangement of the chylopoietic viscera. Preparations of mercury, which operate as cathartics, are, no doubt, of great use in such cases. But a mercurial salivation, in cases of simple fever uncombined with local inflammation, it is believed, will rarely be found serviceable, unless ptyalism be fortunately induced during the few first days of the disease, in which case it may prove instrumental, in common with emetics and cathartics, in breaking up the fever at its onset. In the malignant fevers, which occasionally visit our large cities, the career of the disease is too short and rapid to allow the mercurial influence often to take place; nor is it certain, where it has taken place, that the event of the disease has been different from what it would otherwise have proved.

Mercury has been abundantly used, and with great benefit, in most of the *phlegmasiæ* of Cullen, when these diseases assume a more obstinate form, and do not yield to the primary remedies of depletion and vesication. Inflammations, particularly of the glandular viscera, require this treatment. Those of the liver, especially when they approach to, or assume, the chronic form, demand for their cure a liberal use of mercurials. Obstructions of the hepatic secretion are likewise proper subjects for these medicines; and jaundice, when not accompanied with organic lesion or calculous obstruction, is very generally relieved, when a mercurial ptyalism is produced, and, in some instances, even sooner. Mercury is advantageously employed in dysentery, particularly that of warm climates. There are also various cachectic maladies, cutaneous affections, and local diseases, in which it proves useful, either pushed to the full extent of its powers, or more sparingly employed as an auxiliary to other means.

But there is no disease, in the treatment of which mercury has enjoyed so extensive and unrivalled a celebrity as in syphilis. In this disease it has, until quite lately, been considered altogether and exclusively specific; and recoveries without its assistance have been deemed a sort of impossibility. It was formerly the custom to give it in large quantities, and for a great length of time; to confine the patient to a close room; to create

a severe salivation, and to sustain it for several weeks by the unremitting use of mercury; before the disease was supposed to be eradicated. More recently, a much less degree of the mercurial influence has been found necessary; profuse salivation is in most cases avoided, and moderate ptyalism only is produced, not as being in itself necessary to the cure, but as affording evidence that the constitution has become affected by the remedy. Still more lately, one of the preparations of mercury, the oxymuriate, has been abundantly proved to cure the disease expeditiously and effectually, without the production of any soreness or ptyalism whatever. Finally, as if the importance of the venereal specific was to be at length wholly undermined, a host of facts has, within a short time, sprung up in different places, to shew that syphilis, in all its forms and semblances, may be effectually cured without a particle of mercury being employed in any shape.

The circumstance which first tended to impair the exclusive confidence, which had existed in the anti-venereal powers of this medicine, was, the occurrence of cases of a syphilitic aspect, which could not be cured, but on the contrary were aggravated, by a mercurial treatment. These cases were studied by different European surgeons, particularly Messrs. Abernethy and Carmichael, and by them pronounced to be of a spurious, or not truly syphilitic kind. Various rules of distinction were laid down for separating the true from the false cases. By degrees the latter were found to bear a large proportion to the former; and at length it came to be thought, that the true venereal disease, as it existed in the days of Mr. Hunter, is now a comparatively rare occurrence; while a number of spurious and imitative diseases, curable without mercury, have taken its place. Nor was this all. It soon appeared that the most genuine and undoubted cases might recover without mercury, and the more extensively this experiment was made, the more uniform appears to have been the result, that not only the primary symptoms of syphilis, but also the secondary effects, in all their varieties, may be removed by a treatment in which no mercury is employed.*

* Mr. Rose has published, in the *Medico-Chirurgical Transactions*, an account of 120 cases cured without mercury in his military practice dur-

The treatment by the *antiphlogistic method*, without mercury, which was found successful, consisted usually in confining the patient to the house, and for the most part to a horizontal posture. A simple or liquid diet only was allowed, and the rest of the antiphlogistic regimen strictly enforced. Bloodletting, when required by the symptoms, purgatives and diaphoretics were used, particularly antimony and sarsaparilla. To the diseased parts local applications were made, either soothing or irritating, mercurial or not, according to the condition, stage and appearance of the affected surface.

But it is not to be inferred, that the antisyphilitic reputation of mercury is overthrown by the late experiments, or the public confidence in it destroyed. It will probably always remain a resource against various forms of the disease, and it is yet to be learned from more extensive trials, whether cases do not exist, which admit of no substitute for mercury in their cure. Since, also, this metal retains the undoubted character of being effectual in true syphilis; since the modern modes of its admin-

ing a year and three quarters. Mr. Guthrie successfully treated 100 cases in the same manner, and had seen notes of 400 more cured without mercury in the different hospitals. Dr. John Thomson relates 155 cases similarly cured by him in the Consolidated Depot Hospital at Edinburgh Castle. Mr. Hennen has published 105 equally successful cases, 20 of which were cases of true Hunterian chancre. And in a general investigation, undertaken by the surgeons of the British army, it appeared that, out of 4767 cases, 1940 were cured without mercury. Of these, 96 had secondary symptoms, but every man was fit for military duty immediately on his dismissal from the hospital. The average period for the cure of primary symptoms was 21 days, and of secondary 36 days. The remaining 2827 were treated with mercury. 51 of these had secondary symptoms, and two men were rendered unfit for the service. The average period for the cure of primary symptoms was 33 days, and of secondary 45. The foregoing cases, it is stated, include not only the more simple sores, but also a regular proportion of those with the most marked character of syphilitic chancre. On a survey of the results it appears, that under the non-mercurial treatment, the disease more frequently advanced to the secondary symptoms; but that, on the whole, the average time of cure, both of primary and secondary symptoms, was less than it was in the cases where mercury was employed.

istration are not attended with great inconvenience or interruption of ordinary pursuits ; and since most patients will not willingly submit to the confinement and privations necessary for a different mode of cure ; it is still highly probable that the majority of physicians will continue to esteem it as the safest and most convenient method of eradicating this very serious disease.

MANAGEMENT. The dose and application of the different preparations of mercury will be found under their respective heads. Where a full mercurial influence is thought necessary, it is commonly effected either by the submuriate or the blue pill taken in small and continued doses, or by the mercurial ointment externally applied. When tenderness of the gums, loosening or aching of the teeth and fœtor of the breath begin to appear, we may suspend the medicine, and in many cases shall find the object of the course to be accomplished, without the necessity of occasioning further suffering to the patient. But in obstinate maladies, and those of long standing, it is frequently necessary to sustain the mercurial action for a longer time. This is effected either by renewing the use of the medicine, whenever the soreness abates, during a certain time, or by pushing it at once to the point of full salivation. During a mercurial course, exposures to cold and moisture should be avoided ; also every kind of irregularity and excess in living. The state of the bowels should be attended to, and regulated by laxatives or opiates, if the case requires it.

Sometimes the salivation produced by mercury becomes unmanageably severe, far exceeding in degree our wishes or anticipations. Unfortunately, in these cases, we have no remedy capable of arresting or even of greatly mitigating the progress of this painful operation. Cathartics, opiates, sulphuret of potass, astringent lotions and blisters to the throat have all been resorted to with little advantage. Mr. Pearson recommends, in addition to other means, that the patient be freely exposed to a dry, cold air ; but such exposure, especially if sudden, cannot be accounted safe. It is probable we can do little more than to suspend the medicine altogether ; to remove it from the skin, if the ointment has been used ; and to wait patiently for the spontaneous subsi-

dence of the symptoms. When the pain is excessive, it may be lulled by opiates and fomentations, and if the strength sinks it must be supported by tonics.

A peculiar disease is brought on in some patients by the use of mercury, of which that metal appears to be the specific cause. It is described by many modern writers under a variety of names. In its most simple form the mercurial disease consists of an eruption appearing like a rose-coloured efflorescence, but found on near examination to be made up of minute vesicles. It usually makes its first appearance about the thighs and abdomen, and is attended with heat and itching, sometimes with head-ache and nausea. Sometimes the disease has a febrile form, the eruption is deeper and more extensive, resembling measles, and ends with copious desquamation and with soreness in the mouth and fauces. A malignant species also exists, attended with painful burning of the skin, great soreness of the throat and fauces, dark coloured eruption, violent fever, oppression, cough and difficult breathing. It may grow out of the milder forms of the disease, if the mercury be not seasonably discontinued.

HYDRARGYRUM PURIFICATUM.

Purified Mercury.

The purification of mercury by distillation is supposed to be more effectual, if iron filings are added in the retort. These may prevent the rising of some of the impurities, with which mercury is found adulterated.

HYDRARGYRI OXIDUM CINEREUM.

Grey Oxide of Mercury.

Oxygen combines with mercury in two proportions, forming compounds of different characters. The first is the *protoxide*,

a dark-grey powder, commonly called the black oxide, and which is the basis of all the milder mercurial medicines. The other is the *peroxide*, a red powder, which is the basis of most of those preparations, which are poisonous or caustic.

When calomel is decomposed by lime water, muriate of lime is formed, and held in solution, while protoxide of mercury remains. This is the *grey oxide* of the London and Edinburgh pharmacopœias. To insure the entire decomposition of the calomel, the Edinburgh College employs twice as much lime water as is directed in the London and American pharmacopœias. Grey oxide of mercury is an impalpable, dark slate-coloured powder, which becomes pale when exposed to light and air. It is insoluble, and nearly insipid. It is used for fumigating syphilitic ulcers, and for forming the ointment which bears its name. Internally it is given, though not often, in *doses* of two or three grains.



HYDRARGYRI NITRICO-OXIDUM.

Nitric Oxide of Mercury. Called Red Precipitate.

In preparing red precipitate, a nitrate of mercury is first formed; the nitric acid is then driven off by heat, and an oxide remains, still, however, retaining a slight portion of the acid, which entitles it to be considered a *subnitrate*. It is said to be most successfully prepared, when made on a large scale, with the acid perfectly pure, and with a heat not exceeding 600°.

QUALITIES. Its form is that of small scales, which are of a bright red colour, *insoluble* in water, but soluble in nitric acid without effervescence. It is highly acrid and corrosive.

USES. It is much employed as a mild caustic to stimulate indolent ulcers, and repress exuberant granulations, either by sprinkling it on the part in fine powder, or by mixing it with ointments to be applied. It is also employed to fumigate venereal ulcers in the throat.

HYDRARGYRI OXYMURIAS.

Oxymuriate of Mercury. Called Corrosive Sublimate.

Much diversity of opinion has prevailed in regard to the nomenclature of the two compounds of mercury, known in commerce by the names of corrosive sublimate, and calomel. To the first of these substances, those who have entertained the old views on the nature of muriatic acid, have, in different books applied the names of *muriate*, *oxymuriate* and *corrosive muriate* of mercury. On the contrary, those of the new school of chemistry are unsettled among the terms *bichloride*, *perchloride*, *deutochloruret*, &c. It becomes pharmacologists to follow the steps of chemical reform at a cautious distance, and to retain such names as have extensive pharmaceutical authority, at least until there is a certainty of exchanging them for more useful ones. The name *oxymuriate* of the London and American pharmacopœias has the advantage over the rest, that its meaning is universally understood by the profession; that, having never been applied to any other substance, it is not liable to be mistaken; and that, as the identity of the terms *oxymuriatic acid* and *chlorine* is generally understood, the name really affords no bad indication of the chemical nature of the compound, although it was originally, perhaps, applied under erroneous impressions.

PREPARATION. In the process, by which oxymuriate of mercury is prepared, a sulphate of that metal is first formed, which, when mixed with dried muriate of soda, and exposed to heat, produces a double decomposition; oxymuriate, or bichloride, of mercury is sublimed, and sulphate of soda remains behind.

QUALITIES. It is a white, shining, semitransparent mass, made up of acicular crystals, slightly efflorescent and easily pulverized. It has a disagreeable, metallic, acrid taste, but no smell. It is *soluble* in one part of boiling water, twenty parts of cold water, and four of cold alcohol. It is also very soluble in ether. When heated, it sublimes in the form of a dense, white vapour, strongly

affecting the nose and mouth. It dissolves, without decomposition, in sulphuric, nitric and muriatic acids, but is quickly decomposed by the alkalies and some of the metals. With muriate of ammonia it forms a very soluble compound. Its aqueous solution is decomposed by light, but not its alcoholic. It consists of one proportional of mercury to two of chlorine; and of 73.72 parts, by weight, of mercury to 26.28 of chlorine.

TESTS. As corrosive sublimate is a strong poison, the following tests may serve for its detection: If heat is applied, it volatilizes in white fumes, which tarnish a bright copperplate held over them with a mercurial coating. If exposed to heat in a coated glass tube, it sublimes and lines the upper part of the tube with a shining, white crust. If this is dissolved in distilled water, it gives an orange-yellow precipitate with lime water. Caustic potass produces a yellow precipitate, but if the solution be very dilute, a white cloud appears, which becomes yellowish-red on subsiding. Water of ammonia forms a white precipitate, which turns yellow on being heated. Sulphuretted hydrogen and the hydrosulphurets give a blackish-brown precipitate. Protomuriate of tin gives a white, and nitrate of silver a curdy precipitate.

EFFECTS AND USES. If this compound is taken in any considerable quantity, it produces thirst, heat of the throat and stomach, violent pain in the stomach and bowels, vomiting, diarrhœa, faintings, convulsions and death. In very small quantities, it occasions nausea and vomiting.

In medical practice, it is much used in such doses as the stomach will bear without great inconvenience, and is found a very valuable alterative in cutaneous and syphilitic diseases. It constitutes the basis of many empirical medicines which, under different names, have acquired celebrity in the cure of ulcers, eruptions of the skin, and venereal complaints. There is, perhaps, no medicine which so frequently succeeds as this in effecting changes in the action of the extreme vessels, adequate to remove chronic and obstinate diseases of the skin, as well as to prevent their recurrence. In syphilis, after undergoing many vicissitudes of reputation, it now sustains the character of an easy and undoubted remedy. Although it appears not hitherto to have

become a favorite remedy with the British practitioners, yet in many parts of the continent of Europe, especially Germany and France, also in the United States, particularly in the city of New York, extensive proofs have been published of its efficacy, unassisted by other medicines, in removing all the common forms and varieties of the venereal disease. Compared with other preparations of mercury, it has the advantage that it rarely salivates, and that, under proper management, it is safe and easy in its operation, and subjects the patient to little inconvenience or restraint.

EXHIBITION. The use of corrosive sublimate may be commenced with an eighth of a grain, two or three times in a day, and gradually increased till it produces nausea. The highest *dose* being thus ascertained, which the stomach will bear without inconvenience, it may be continued for a greater or smaller length of time, until the desired effect is produced, or the insufficiency of the medicine decided. From one to eight weeks is ordinarily a sufficient period; but it may be continued for a much longer time, if no adverse symptom, attributable to the medicine, occurs. The forms of exhibition are those of the *solution* and *pills*; which see. Of these, the solution is to be preferred, admitting of more gradual increase.

Oxymuriate of mercury is decomposed by the alkalies, alkaline earths, soaps, sulphur, various metals, salts, &c. The contents of the stomach, after eating, modify very much its effect, so that it should always be given on an empty stomach, and each dose, as nearly as possible, under similar circumstances.

ANTIDOTES. Albuminous substances, such as the white of eggs, according to Orfila, form the best antidote when an overdose has been swallowed. If these are not at hand, wheat flour, mixed with water, oils and demulcent drinks are found most effectual as counter poisons.

LIQUOR HYDRARGYRI OXYMURIATIS.

Solution of Oxymuriate of Mercury.

This solution is directed by the London and American pharmacopœias as a convenient form for exhibiting corrosive sublimate. A fluidounce contains half a grain. It should be kept in dark bottles, since the action of light sometimes decomposes the oxymuriate, and calomel is precipitated. *Dose*, two fluidrachms, to be gradually increased.*

• HYDRARGYRI SUBMURIAS.

Submuriate of Mercury. Called Calomel.

This compound is denominated *submuriate* of mercury in all the British pharmacopœias, as well as the American. Although, in strict chemical accuracy, this is not the most appropriate name; yet as the term *muriate* cannot safely be adopted, being applied in many books to the oxymuriate; and as medical writers have not yet substituted either of the new terms *chloride*, *protochloride* or *protochloruret*; the wisest course consists in retaining the present name, which is universally understood, and applied to no other substance.

PREPARATION. In the formation of calomel by the common process, the crude mercury abstracts from the corrosive sublimate a part of its chlorine, and the mixed mass assumes a blackish-grey

* The following TINCTURE OF OXYMURIATE OF MERCURY has been extensively in use in this city:

Take of Oxymuriate of mercury, twenty-four grains.

Diluted alcohol, one pint. Mix.

The *dose* of this spirituous solution is thirty or forty minims, to be increased or diminished, according to the effect it produces. It is less liable to decomposition than the aqueous solution above.

colour. The sublimations render complete the combination of one proportional of the chlorine in the sublimate with the newly added mercury, and the result is a whitish mass, consisting of calomel. This, however, is not the case after the first sublimation; for both metallic mercury and corrosive muriate are found in the sublimed mass. If, on the other hand, the sublimation is repeated too often, the product is liable to be injured and to contain corrosive sublimate. As a test of the purity of calomel, the Dublin College direct that, after being pulverized, it should be washed with repeated affusions of distilled water, until the liquid poured off no longer lets fall any sediment on the addition of a few drops of solution of subcarbonate of potass.

QUALITIES. Submuriate of mercury, when first sublimed, is a semi-transparent mass of short prismatic crystals, having a yellowish-white or ivory colour, which deepens by exposure to light. It is without taste or smell. For all practical purposes, it may be regarded as *insoluble*, since it requires 1152 parts of boiling water for its solution. Lime water and alkalies immediately turn it to a dark slate-colour by combining with its chlorine and leaving protoxide of mercury. Nitric acid reproduces corrosive sublimate. It consists of one proportional of mercury to one of chlorine; or of 84.85 parts of the metal to 15.15 of chlorine.

USES. Submuriate of mercury, considered in regard to the extent in which it is employed, and the variety of indications which it is capable of fulfilling, is one of the most important preparations in the *Materia Medica*. Under different modes of administration, it is cathartic, emetic, sialagogue, alterative, diuretic, expectorant, or anthelmintic. Larger quantities of it are consumed for internal use, than of all the other preparations of mercury put together.

Employed as a purgative, calomel is distinguished by an operation at once active, effectual and easy. It seems to commence its operation higher in the alimentary canal than most other purgatives, and to afford more relief to the stomach by evacuating that organ downwards. It is particularly useful as a purge in fevers, which are attended with a disordered state of the chylopoietic viscera, producing the symptoms usually called bilious.

In jaundice, and in chronic forms of dysentery, it is to be preferred to other cathartics, not only because it produces effectual evacuations, but because any approaches to a mercurial influence on the constitution are salutary in those diseases. In cases where the stomach merely is clogged with viscid or acrid impurities, greater relief is obtained from calomel than from any other purgative. It promotes the expulsion of lumbrici better than most of the anthelmintics in common use. No cathartic is more easy of exhibition ; for being without taste or smell, and the dose being small in bulk, it may be administered, even without discovery, to children and timid patients. It is peculiarly suited to children at about the age of dentition, at which period it operates on them with mildness, and rarely, if ever, produces ptyalism. *See the remarks, page 208.*

When calomel is long continued, whether in large or small doses, and whether it purges or not, it brings on a sore mouth and salivation. Administered in this way, it is applied to the cure of various diseases in the manner already stated under the general head of *Mercury*. As a number of days usually elapse before the mouth can be affected under the use of calomel, the convenience and welfare of the patient make it often desirable that its purgative tendency should, as far as possible, be restrained. But it is not certain, although it seems to be frequently believed, that the ultimate object, that of producing ptyalism, is at all retarded in consequence of the mercury running off by the bowels. On the other hand, it often appears, that the patients, who are most easily salivated by calomel, are those whose bowels are most susceptible of its purgative stimulus. This remark is the result of my own observations, and is confirmed by those who have paid particular attention to the subject.

Submuriate of mercury, combined with emetics, particularly with ipecacuanha, renders their emetic operation more effectual. With diuretics it acts upon the kidneys. In acute pulmonary inflammations, after the first violence of the complaint is subdued, calomel eminently promotes that state of the extreme vessels of the lungs, which is favorable to free expectoration. And in various other inflammatory diseases it proves powerfully alterative,

augmenting the secretions and excretions, and affording a convenient and effectual mode for attaining the objects of a mercurial course.

EXHIBITION. On account of its weight and insolubility, calomel is best given in pills. When administered in powder, it should be mixed with some very tenacious fluid, like molasses or thick mucilage. For want of attention to this circumstance, the calomel in compound powders is frequently lost by subsiding to the bottom of the spoon or other vessel employed. A purgative *dose* is from five to fifteen grains. It should be observed, that in health, also in most chronic diseases, smaller doses will operate than in acute fevers and inflammations. Likewise, in an acid or disordered state of the stomach, smaller quantities will be found effectual, than under opposite circumstances. When an active and certain operation is required, it is better to combine six or eight grains of calomel with about three times the quantity of jalap, or with some other vegetable cathartic, than to employ it alone, even in a greater proportionate quantity. To females, and to persons known to be particularly susceptible of the mercurial stimulus, large doses of calomel should not be given on slight occasions, nor repeated on two successive days, if we wish to avoid the risk of salivation. In diseases of the chylopoietic viscera, it is often useful to give calomel at night, and a different purge on the following morning.—For teething children, from one to five grains is a suitable *dose*.

When it is desired to produce a constitutional effect, or ptyalism, a grain of calomel, in a pill, may be given night and morning. If it does not affect the bowels, the quantity may be increased; but if purging takes place, it may be diminished. If the degree of purging is troublesome, a third of a grain of opium should be added to each pill. In urgent or difficult cases, its action may be promoted by frictions with mercurial ointment.

Alkalies and lime water decompose calomel, and leave a protoxide of mercury. Soaps also, when in solution, produce the same effect. These substances, if combined with it in medical prescriptions, have some effect on its activity, and, if present in sufficient quantities, they reduce it to the same strength as the blue pill.

HYDRARGYRI SUBMURIAS AMMONIATUS.

Ammoniated Submuriate of Mercury. Formerly White Precipitate.

In the process by which this article is prepared, the oxymuriate of mercury and muriate of ammonia combine, forming a ternary compound of muriatic acid, ammonia, and mercury, in solution. On adding the subcarbonate of potass, a part of the acid is abstracted, muriate of potass is formed and remains in solution, while an insoluble muriate of mercury and ammonia is precipitated. Mr. Phillips thinks the quantity of subcarbonate of potass ordered is not sufficient.

This preparation is a fine, insoluble powder, whiter than calomel, and not turning black when triturated with lime water. It is used externally for cutaneous eruptions, in the form of an ointment; which see.

HYDRARGYRI SUBSULPHAS FLAVUS.

Yellow Subsulphate of Mercury. Formerly Turpeth Mineral.

When the dry, white powder, formed in the first part of this process, is mixed with boiling water, a supersulphate of mercury is separated and remains in solution, while a subsulphate is precipitated. The subsulphate is a beautiful, bright yellow powder of an acrid taste. It is nearly *insoluble*, requiring 2000 parts of cold, and 600 of boiling water for its solution.

Subsulphate of mercury is a violent emetic in *doses* of from three to five grains, and is only used in extraordinary cases. In smaller doses, it is given as an alterative in obstinate syphilitic cases. Mixed with several times its weight of liquorice, it is snuffed up the nose as an errhine. It occasionally salivates.

HYDRARGYRI SULPHURETUM NIGRUM.

Black Sulphuret of Mercury. Formerly Æthiop's Mineral.

When mercury is triturated with sulphur, it is converted into a black, impalpable powder, without taste or smell. This powder contains about 100 parts of mercury to 8 of sulphur. It was formerly much used in medicine under the name of *Æthiop's mineral*, but it is one of the most inert preparations of mercury, and is little employed at the present day, except sometimes as an anthelmintic or an alterative in cutaneous and scrofulous diseases. *Dose*, from five to thirty grains three times a day.

HYDRARGYRI SULPHURETUM RUBRUM.

Red Sulphuret of Mercury. Formerly Cinnabar.

This article is better known in the arts, under the name of *Vermilion*, than it is in medicine. It is of a beautiful red colour, insipid, insoluble, and burns with a blue flame. It is a bisulphuret, containing twice as much sulphur to a given quantity of mercury as the preceding article. This compound is seldom used internally at the present day. Its chief use in medicine is to fumigate venereal ulcers in the throat, which is done by throwing it on heated iron, and inhaling the vapour. If taken internally, the *dose* may be from ten to thirty grains.

A mercurial bath has been contrived for the treatment of syphilitic and cutaneous diseases, by enclosing the body, without the head, in a box or sack, and filling it with fumes of sulphuret of mercury.

HYOSCYAMUS.

Henbane.

ORIGIN. The *Hyoscyamus niger* is an European plant, of biennial duration, now naturalized in waste grounds and road sides in the United States.

QUALITIES. It is a glutinous, hairy, fetid plant, and becomes extremely offensive if the green leaves be shut up over night in a box. The taste is mucilaginous and slightly acrid. Its active properties are readily communicated to diluted alcohol or proof spirit. A peculiar alkali, called *Hyoscyamia*, has been extracted from this plant, and which contains its narcotic energy in a high degree. It crystallizes in long prisms, and forms, with sulphuric and nitric acids, very characteristic salts. It is said to resist alteration, even at a red heat.

USES. Henbane operates on the human system as a powerful narcotic, and if incautiously taken in large quantities, affects the brain with stupor or delirium, suspends the sensibility of the retina, brings on vomiting or purging, convulsions, cold sweats, great prostration of strength, and other alarming symptoms. It has, however, been introduced into medicine in small doses as an anodyne and antispasmodic. Along with its narcotic power, it has a laxative effect on the bowels, and has been used as a substitute for opium in cases where that medicine disagrees with the patient, or where it is particularly desirable to avoid costiveness. Henbane is not, however, an equivalent for opium, and is apt to produce disturbed and unrefreshing sleep. It has been given in colic, particularly colica pictonum, in rheumatism, hysteria, and some puerperal complaints. Externally it forms a useful anodyne application in hemorrhoids, in chordee, and in painful ulcerations.

EXHIBITION. Internally it is used in the form of *extract* and *tincture*; which see. Externally the bruised leaves are applied as a cataplasm.

ICTHYOCOLLA.

Isinglass.

ORIGIN. Isinglass consists of the dried sounds or swimming bladders of certain fish, principally of the sturgeon tribe. The *Acipenser huso*, or beluga, is supposed to afford the best. At present, most of the isinglass of commerce is procured from fishes, which inhabit the northern rivers of Europe and Asia. The high price of the article would justify its preparation in the United States; and there is no doubt that various species of American fishes would afford it.*

QUALITIES. Isinglass commonly comes in the form of leaves, or in rolls bent into the shape of a heart. The best is without taste or smell, and dissolves almost wholly in water. It consists of gelatin nearly pure, being principally soluble in hot water, the solution coagulating into a jelly on cooling. It precipitates tannin from all vegetable solutions that contain it, and is used as the common test of that substance. Alcohol separates it from water.

USES. It has been employed as a demulcent, but is now more used as a nutritious and light article of diet, and a refining medium for liquors.

INFUSA.

Infusions.

Infusions are solutions of vegetable matter in water, which are made without boiling. They are prepared either with cold or hot water, according to the chemical nature of the substance

* A manufactory of isinglass of very good quality is now in operation at Gloucester, Massachusetts.

to be infused. Some vegetables impart their active properties sufficiently to cold water, and are more grateful to the taste when thus infused. Others require that the water should be kept for some time near to the boiling point; and the infusions thus formed partake of the character of decoctions. When the active constituents are of a volatile nature, the heat used should not be great nor long continued. On account of the difficulty of preserving infusions from decomposition, they are generally prepared a short time only before they are wanted.

INFUSUM ANGUSTURÆ. *Infusion of Angustura.*—This is a light, bitter tonic, in the *dose* of one or two fluidounces.

INFUSUM ANTHEMIDIS. *Infusion of Chamomile.*—This infusion is an excellent tonic, and proves grateful to the stomach in the *dose* of one or two fluidounces. When it is prepared with hot water, the taste is less pleasant, and this infusion is frequently employed, in a lukewarm state, to promote the action of an emetic.

INFUSUM ARMORACIÆ. *Infusion of Horseradish.*—From one to three fluidounces are given several times in a day as a stimulant and diuretic in paralytic and dropsical cases.

INFUSUM CASCARILLÆ. *Infusion of Cascarilla.*—The bitter property of Cascarilla and much of its aroma are preserved in this infusion. It is a light tonic, and is advantageously used in low stages of fever by patients who cannot support the Peruvian bark. *Dose*, from a half to two fluidounces three times a day.

INFUSUM CINCHONÆ. *Infusion of Peruvian Bark.*—This is the weakest preparation of cinchona, and is used only where light tonics are indicated, or where the bark cannot be supported in a more effectual form. *Dose*, one or two fluidounces three or four times in a day.

INFUSUM CINCHONÆ CUM AQUA CALCIS. *Infusion of Peruvian Bark with Lime Water.*—From the experiments of Dr. Skeete, detailed in his *Essay on Peruvian bark*, it would seem,

that lime water promotes the solubility of some portions of the bark. According to him the infusion made with lime water is of a red colour, and "remarkably more bitter to the taste" than the infusion made with simple water. It also undergoes a much greater change of colour on the addition of sulphate of iron. In some dyspeptic complaints, the lime is a useful medical adjunct to the cinchona.

INFUSUM CINCHONÆ CUM MAGNESIA. *Infusion of Peruvian Bark with Magnesia.*—This preparation is extolled by Dr. Skeete as being of a much deeper colour than the simple infusion; more bitter and astringent to the taste; yielding a greater discoloration and precipitate with sulphate of iron; and, finally, as keeping for a much longer time than the simple infusion. He supposes that magnesia, when triturated with bark, forms a compound more active and soluble in water than pure bark. This preparation and the preceding may be taken in the same *doses* as the simple infusion. See *Magnesia*.

INFUSUM CINCHONÆ CUM SUCCO LIMONUM. *Infusion of Peruvian Bark with Lemon Juice.*—With this preparation of bark, I am not experimentally acquainted. It seems calculated for the low stages of fever, to be taken in *doses* of one or two fluidounces.

INFUSUM COLOMBÆ. *Infusion of Columbo.*—A very bitter infusion, possessing the medicinal properties of columbo.

INFUSUM DIGITALIS. *Infusion of Foxglove.*—The infusion affords a pleasant and useful mode of exhibiting foxglove. The addition of cinnamon covers the unpalatable taste. Half a fluidounce may be taken twice a day, and the quantity gradually enlarged till the effects of the foxglove appear.

INFUSUM EUPATORII. *Infusion of Eupatorium.*—This infusion may be taken cold, as a tonic, in the *dose* of a fluidounce; or warm, as an emetic and sudorific, in the *dose* of half a pint.

INFUSUM GENTIANÆ COMPOSITUM. *Compound Infusion of Gentian.*—This preparation contains the bitter and aromatic properties of the articles employed in forming it. The diluted alcohol renders the solution more perfect, and makes it less liable to change in warm weather. *Dose*, as a tonic and stomachic, one or two fluidounces.

INFUSUM LINI. *Infusion of Flaxseed.*—Flaxseed tea, thus prepared, may be taken *ad libitum* in strangury and other cases, which require demulcents.

INFUSUM QUASSIÆ. *Infusion of Quassia.*—Quassia is commonly exhibited in infusion, its bitter principle being fully dissolved by water. This preparation is a mild and excellent tonic in the *dose* of half a fluidounce three times a day.

INFUSUM QUASSIÆ CUM SULPHATE ZINCI. *Infusion of Quassia with Sulphate of Zinc.*—Sulphate of zinc is a useful adjunct to quassia, and considerably increases its tonic power in dyspepsia and habitual diarrhœa. *Dose*, as in the preceding article.

INFUSUM ROSÆ COMPOSITUM. *Compound Infusion of Roses.*—This is an acid, astringent infusion, used as a gargle in sore throats, and as a vehicle for magnesia, which it renders more purgative.

INFUSUM SENNÆ COMPOSITUM. *Compound Infusion of Senna.*—In this infusion supertartrate of potass is added to promote the purgative operation, and ginger to correct the griping tendency of the senna. The quantity of senna has been thought unnecessarily large, and more than sufficient to saturate the water. *Dose*, three or four fluidounces.

INFUSUM SENNÆ ET TAMARINDI. *Infusion of Senna and Tamarind.*—This is a weak infusion of senna, but more pleasant to the taste than the other infusions. *Dose*, about half a pint.

INFUSUM SERPENTARIÆ. *Infusion of Virginia Snake Root.*—The bitterness of snake root is communicated to water by infusion, together with a considerable part of its aromatic pungency. A fluidounce may be taken cold, as a tonic, several times in a day, or a much larger quantity, while hot, as a sudorific.

INFUSUM SPIGELIÆ. *Infusion of Carolina Pink.*—This infusion is mucilaginous and rather unpalatable. Half a fluidounce may be taken by a child two years old, and half a pint by an adult. This *dose* may be repeated three times a day, if no narcotic symptom is observed.

INFUSUM TABACI. *Infusion of Tobacco.*—Half a pint of this infusion may be injected as an enema in tetanus or incarcerated hernia. It produces purging and the powerful constitutional effects of tobacco.

INFUSUM ULMI. *Infusion of Slippery Elm.*—This is a valuable demulcent liquid, which may be taken freely in cases of dysentery, strangury and catarrh.

INFUSUM VALERIANÆ. *Infusion of Valerian.*—Valerian is advantageously given in infusion, in the *dose* of a teacupful, or about four fluidounces. This quantity, taken at night by nervous patients, frequently procures sleep better than opium. It is often useful to make the infusion twice as strong as that directed by the Pharmacopœia, or in the proportion of an ounce to a pint.

INULA.

Elecampane.

Elecampane is a tall plant, not unlike the sun-flower, introduced from Europe, and now found by road sides in the United States. The taste of the root is bitter and somewhat pungent.

A white powder, like starch, is deposited from the decoction on cooling, to which the name of *Inulin* has been given. When treated with nitric acid, it produces malic and oxalic acids. Elecampane has been considered tonic and expectorant, but is inferior to many other articles of this character.

IPECACUANHA.

Ipecacuanha.

ORIGIN. It was not distinctly known from what plant this important root was obtained, until Professor Brotero published in the Linnæan Transactions a figure and description of the *Callicocca ipecacuanha*, from which the true Brazilian drug is derived. Another plant, allied to the *Callicocca* in its botanical habit, the *Psychotria emetica*, was sent by Mutis to the younger Linnæus as the species producing the ipecacuanha. Baron Humboldt, likewise, who has given a figure of the *Psychotria* in one of the later fasciculi of his splendid work, the *Plantæ Equinoxiales*, informs us that this plant is cultivated for exportation by the inhabitants of San Lucar and various parts of New Grenada; that it is carried by traders to Carthagena; and that the ipecacuanha, which the merchants of Cadiz distribute throughout Europe, is almost wholly the root of this vegetable. In a letter to Mérat, published since in a different work, he states, that farther south, in the neighborhood of Badillas, he has seen the *Callicocca ipecacuanha* cultivated for the sake of its root. The roots of both plants are known by the name of Raicilla, and the word ipecacuanha is not in use among the inhabitants.

After a careful examination of the plates of Humboldt and Brotero, I am satisfied that the kind of ipecacuanha, which our druggists are accustomed to consider genuine, and for which they pay a high price, is the root of the *Callicocca*, and not of the *Psychotria*. The latter root is indeed rare in this country, a circumstance which its inferior efficacy leaves no cause to regret.

QUALITIES. Good ipecacuanha produced by the *Callicocca*, otherwise *Cephaelis* of Willdenow, is, in its dry state, a small, wrinkled root, about the size of a hen's quill, variously contorted and marked with annular prominences, dark coloured on the outside, but pale or greyish within, dense, brittle, breaking with a resinous fracture, and interrupted by circular, transverse fissures. The woody part forms a small, tough, fibrous centre, serving to connect the fragments or rings together. The taste of this root is nauseous and slightly bitter, with little smell. The activity resides chiefly in the cortical or brittle part, the woody centre being nearly inert. Some varieties of this root are known in commerce, particularly the *grey* and the *brown*, which differ principally in their size and shades of colour, being both derived from the same plant.

Ipecacuanha has been chemically examined by Pelletier and Magendie, who, besides the woody fibres, obtained from it portions of wax, gum, starch, oily matter, and a peculiar substance, in which the emetic property resides, and which, not being able to resolve it into other substances, they have considered a distinct proximate principle, and have given it the name of *Emetine*. This substance is obtained in the form of dark-red, transparent scales, having an empyreumatic odour, and a bitterish, but not nauseous taste, followed by some acrimony. It deliquesces in a moist atmosphere, is very soluble in water and alcohol, but is not soluble in ether. Nitric acid converts it into oxalic acid. Emetine, otherwise called *Emeta*, possesses, in a concentrated state, the emetic power of ipecacuanha. In the dose of from two to four grains for an adult it excites full and effectual vomiting.* It is also stated to have a specific action upon the lungs and mucous membrane of the intestines; also to produce some narcotic

* The statement in various books, that half a grain excites violent vomiting, is probably made in consequence of experiments on animals. I have satisfied myself, by various experiments made with emetine obtained from Pelletier in Paris, that three or four grains are necessary to produce full and effectual vomiting. I have rarely succeeded in an adult with less than two. Méral directs from two to four grains in the *Dict. des Sciences Médicales*, XXVI. 20.

effect. Large quantities are attended with danger, and dogs have been destroyed by the dose of ten grains. Emetine is recommended by the French chemists to be substituted for ipecacuanha, on account of its more pleasant taste, its small bulk, and its ready solubility in water. Various emetic plants contain this peculiar substance. The grey and brown roots of *Callicocca*, which Pelletier supposed to proceed from different plants, afforded him sixteen and fourteen per cent. of emetine. The root of the true *Psychotria*, afterwards examined by the same chemist, yielded only nine per cent. The white ipecacuanha, which is the root of a *Viola*, or more probably a *Reichardia*, gave but five per cent. of the emetic principle. Some researches were made by Caventou for emetine in several European plants with little success. The *Viola odorata* afforded a small quantity, while the *Euphorbia helioscopia*, *Polygonum aviculare*; and *Asarum Europæum* yielded none at all.

ADULTERATIONS. The various roots which have been mixed with, or substituted for that of *Callicocca ipecacuanha*, are for the most part easy of distinction. The root of *Psychotria emetica* is without rings, striated longitudinally, its fracture blackish, and its taste nearly insipid. That of *Viola ipecacuanha*, or *Reichardia*, is whitish, amylaceous and insipid. *Gillenia trifoliata* is distinguished by its bitter taste, and the red colour of its decoction. *Euphorbia ipecacuanha* and *Phytolacca decandra* may be known by their large size, spongy texture without the central fibre, and comparative insipidity.

USES. Ipecacuanha justly stands at the head of the vegetable emetics hitherto examined, both for the promptness, efficacy and safety of its operation. Of the common emetics, it is one of the most mild, being less powerful than the preparations of antimony, and less speedy than the sulphate of zinc. Given in substance, it evacuates the stomach freely of its contents, and in full doses inverts the action of the duodenum, producing discharges of bile. The activity of ipecacuanha is proportionate to the largeness of the dose, though in a less ratio than that of the mineral emetics, owing to the bulk and partial insolubility of the powder, a great portion of which is thrown off with the first efforts

to vomit. Its emetic power is much increased by the addition of a small portion of calomel, or of tartar emetic. Ipecacuanha is our best medicine in cases where moderate vomiting is indicated, where it is only requisite to free the stomach from impurities, or where the reduced strength of the patient forbids us to encounter the risk of violent emesis. But in cases which demand active and powerful vomiting, not only to dislodge the contents of the stomach, but to excite a continued effort, and force other parts of the system into sympathetic action; more powerful means are requisite than this medicine affords.

In small or nauseating doses, ipecacuanha is found to exert a useful influence in various diseases, apparently by means of its sympathetic operation on different parts of the body. Its action on the mucous membrane of the bronchiæ and fauces renders it of service in catarrhal and pneumonic disorders; and in the different states of these complaints it appears to exert a diversified and seemingly opposite action; not only promoting expectoration in cases where the mucous membrane is inflamed and dry, but likewise serving to restrain the secretion, when it is inordinate and excessive.

It is given in hemorrhages, particularly of the lungs and uterus, either alone or combined with opiates and astringents. It is unquestionably efficacious in these discharges, though less powerful than sulphate of copper, or acetate of lead.

In dysentery, ipecacuanha appears to have been long employed, and in all quarters of the world. Practitioners differ much, however, as to the stage and quantity in which it is to be given. Zimmerman has pronounced it dangerous to employ this emetic in early stages of the disease, while some physicians in India have resorted to it in large doses, combined with opium, at the first onset. The latter practice has been successfully imitated in this country. One or two grains of opium, combined with as many scruples of ipecacuanha, will retard vomiting for some hours, and throw the patient into a profuse perspiration. But in common cases, it is better to give smaller doses, and not till after the full operation of a cathartic. Half a dozen grains, given at night with a grain of opium, prove a strong sudorific, and are generally

followed by vomiting in the morning, and often with marked relief of the complaint.

In symptomatic asthma, from foulness or acidity of the stomach, vomiting produced by this, or any other emetic, gives instantaneous relief. But, in some patients, the dust and odour of ipecacuanha brings on a paroxysm of asthma, even in health.

In minute doses, of from a quarter of a grain to two grains, ipecacuanha has been thought by M. Daubenton and others to be efficacious in dyspepsia. It is directed to be taken habitually in the morning on an empty stomach. The dose should be such as to produce a distinct sensation in the stomach, but not amounting to nausea. It appears, in these cases, to promote the ordinary functions of the alimentary canal, and it frequently obviates the costiveness, which is so troublesome a concomitant to dyspeptic cases.

Among the properties, which have been ascribed to ipecacuanha, one of the most remarkable is an anti-emetic power. In the Memoirs of the Royal Society of Copenhagen it is stated to have cured a case of iliac passion of several days' standing, which resisted all other remedies. It is certain that we sometimes find spontaneous vomiting to cease after the operation of an emetic of this sort, even though nothing is discharged of a character to account for the relief produced.

EXHIBITION. The most common form of administering this medicine is powder, the *dose* for an adult being from one to two scruples. Delicate stomachs are moved by ten grains; but in common patients, powerful vomiting is not often produced without the exhibition of a quantity even larger than that which has been specified. The powder is most conveniently taken mixed with treacle or jelly, or diffused in water. Wine of ipecacuanha preserves the emetic virtues of the root, and may be advantageously combined with the powder. Children are vomited by from one to ten grains of the powder, according to their age and case. As a diaphoretic or expectorant, one, two or three grains may be administered.

INCOMPATIBLE SUBSTANCES. Vinegar and the vegetable acids weaken the force of ipecacuanha, and vegetable astringents are

said to produce the same effect. Opium retards its action, and directs it to the skin, and is reciprocally weakened in its narcotic power by the ipecacuanha. The best anti-emetics, in cases of excessive operation are, strong hyson tea ; carbonic acid afforded by different effervescing draughts, such as that produced by mixing lemon juice with a solution of subcarbonate of potass ; aromatic tinctures ; and lastly laudanum.

IRIS FLORENTINA.

Florentine Orris.

The *Iris Florentina* is a native of the south of Europe, but is frequently cultivated in our gardens. The fresh root is acrid and purgative, but the dried root farinaceous and nearly inert. It has an agreeable odour, and is sold by our apothecaries principally as a masticatory to improve the breath.

IRIS VERSICOLOR.

Blue Flag.

This species is indigenous, and very common in wet grounds. The root contains resin, and a nauseous, acrid, volatile matter. When recent, or newly dried, it is a powerful emetic and cathartic, and was in use for this purpose among the Indians. It is liable, however, to produce a distressing, long-continued nausea, and prostration of strength, which will, no doubt, prevent its use in common cases. In the *dose* of one or two grains, recently dried, it is diuretic ; and has been found a useful adjunct to other medicines of that class in dropsical cases.

JALAPA.*Jalap.*

ORIGIN. This important drug is brought from Mexico, through the port of Vera Cruz. It was considered by Linnæus to be the root of a *Convolvulus*, to which he gave the specific name of *jalapa*. Several travellers in Mexico, especially Houston and Thierry de Menonville, have confirmed its generic character. Some ambiguity, however, exists as to the distinguishing marks of the species which produces the officinal jalap. The plant represented and described as *Convolvulus jalapa* by Desfontaines, in the *Annales du Museum d'Histoire Naturelle*, it appears, is the *Ipomœa macrorhiza* of Michaux, a native of Florida and Georgia. This vegetable, the root of which grows to the weight of fifty pounds, so closely resembles the Mexican plant, from which jalap is said to be obtained, that Pursh and some other botanists have considered them identical. From Dr. Baldwin, however, we learn, that the root of this *Ipomœa* differs widely from jalap in its physical properties; that six drachms of the powder produce no cathartic operation; that, when chemically examined, it exhibits no evidence of resin, and that it is saccharine and farinaceous, and is sometimes eaten by the negroes. Mr. Elliott concludes, either that modern botanists have mistaken the plant of Linnæus, or that climate has destroyed its active properties, or that the jealousy of the Indians has concealed the plant producing the officinal jalap from Europeans.

QUALITIES. The Mexican jalap is a fleshy root, brought to this country in dried, transverse slices, with some small, roundish roots entire. It has a faint, disagreeable smell, and a sweetish, rather unpleasant taste, leaving a sense of pungency behind. It is heavy, hard and compact, breaking with a resinous fracture. It is liable to be corroded by the larva of an insect, so that pieces which are found spongy, cellular and light, ought to be rejected. The most complete analysis I have seen is that of M. Cadet, who

found that 500 parts of this root afforded 220 of gummy extract, 50 of resin, $12\frac{1}{2}$ of fæcula, $12\frac{1}{2}$ of albumen, 145 of woody matter, besides various salts and minor ingredients. The resin of jalap is its most active constituent, and was formerly separated under the name of *magistery* of jalap. It is, however, irregular and painful in its operation, and has no advantage over the substance of the root. The watery extract is more mild in its effects.

USES. Jalap is an efficacious and useful purgative, and as such had been long employed by the Mexicans before the discovery of America. It ranks with the more active cathartics, and is resorted to in most of the diseases which call for medicines of that class. It sometimes occasions griping, an objection to which all the more powerful cathartics are liable. It likewise produces nausea in weak and irritable stomachs. But the comparative certainty and efficacy of its purgative operation, combined perhaps with its cheapness, have brought it into very extensive use. The diseases to which it is adapted are of course numerous, yet its greatest notoriety has been obtained as a commencing purge in fevers, and as a drastic evacuant in dropsy.

EXHIBITION. Jalap operates well in the *dose* of a scruple, and powerfully if two scruples are given. The powder is decidedly the best form of administering it. On account of the tendency which cathartics have to facilitate the operation of each other, jalap is usually given in combination with other medicines of the same class, particularly calomel. Ten grains of each of these medicines, intimately rubbed together, form a common, as well as active and useful purge. Another favorite mode of combination, particularly for inflammatory diseases, and for dropsy; is that with the supertartrate of potass. See *Compound powder of jalap*.

JUGLANS.

Butternut.

The butternut is a common American tree, growing plentifully in the northern, middle and western parts of the United States.

The sap of this tree affords sugar like that of the maple, and the nuts, although extremely oily, are not unpleasant to the taste. The bark is the part used in medicine, and that considered most efficacious is the inner bark of the root. It appears from chemical examination, that the bark is not distinctly resinous nor astringent. Its activity seems to reside in an extractive portion, readily soluble in water. This portion has a decidedly laxative effect on the bowels, operating with great mildness and ease. It has possessed some celebrity in dysentery, but its common use is as an aperient in cases of habitual costiveness. On account of its bulk, the bark is not commonly given in substance. The *Extract of butternut* is greatly preferable ; which see.

JUNIPERUS.

Juniper.

The juniper tree of Europe seldom exceeds the dimensions of a large shrub, and is subject to several varieties in growth and size. A remarkable variety is found in the United States, distinguished by its prostrate mode of growth, and spreading into beds of considerable size ; on which account some have considered it a distinct species.

Juniper berries have a strong, peculiar taste, accompanied with considerable sweetness. When long chewed, they leave behind an impression of bitterness. The sweetness appears to reside in the saccharine matter of the pulp, the bitterness in the seeds or their immediate investment, and the aromatic flavour in the essential oil. On this account, tinctures made from the whole berries are commonly sweet, while those from the bruised berries are bitter. These berries, which are the officinal part of the tree, have long possessed the character of a diuretic in dropsical cases ; and it is from the impregnation of their essential oil, that the spirit denominated gin derives its diuretic property. In the inferior kinds of gin, the oil of juniper is counterfeited by oil of

turpentine. Like many other medicines of its class, juniper not only stimulates the kidneys, but at the same time acts on the neighboring organs. Hence it has been found advantageous in uterine obstructions, paralysis of the neck of the bladder, &c. From half a drachm to a drachm of the berries are given at a *dose*. The American berries are far inferior to the European in strength; of which last, the Italian berries are considered best. The test of goodness is in their juiciness and the pungency of their oil. Unfortunately a great portion of the berries sold in our shops are the refuse of gin distilleries, which, being deprived of their essential oil, are tasteless and inert.

JUNIPERUS VIRGINIANA.

Red Cedar.

This is a tree growing on rocky, barren hills, throughout the United States, and often, though improperly, called Savin. Its leaves have a strong, unpleasant and pungent taste, residing principally in a resin and a volatile oil, which they appear to contain. The red cedar resembles the European savin not only in its botanical habit, but also in its sensible and medicinal properties. It appears to have been first introduced into practice under a supposition of its identity with the true savin. Like that tree, its leaves are found to be stimulant, diuretic and emmenagogue, and have been used with some success for rheumatism, dropsy and catamenial obstructions, in *doses* of one or two scruples. But the chief officinal use of this article is in the composition of the irritating *cerate*, which bears its name, and is described in its proper place.

KINO.

Kino.

ORIGIN. Kino appears to be a vegetable extract prepared from an astringent tree. Since it was introduced by Dr. Fothergill, a number of different varieties, bearing the name of kino, have been imported from different parts of the globe into the markets of this country and Europe. The African kino, it appears from specimens collected by Mungo Park, is obtained from a nondescript species of *Pterocarpus*. The New Holland kino is the inspissated juice of the *Eucalyptus resinifera*. That imported from Jamaica is produced by the *Coccoloba uvifera*. The East India kino, which at present is the predominating sort in commerce, according to Mr. Thomson, comes from Amboyna; but the tree which yields it is not stated. It is remarkable that the London, Edinburgh and Dublin colleges, have all directed different kinds of kino, the last referring to *Butea frondosa* as the source of the drug.

QUALITIES. The sorts of kino generally agree in possessing a dark-brownish colour, an austere and very astringent taste, and the form of glossy, angular fragments. They differ from each other in various minute characteristics. Tannin and extractive are the principal chemical constituents, to which they all owe their efficacy.

USES. Kino is a strong astringent and styptic, employed both internally and externally in various debilitating discharges. Its dose is one or two scruples. Its force is weakened rather than increased by combination with some of the mineral astringents, in consequence of the chemical action, which takes place between them. Kino may be advantageously superseded by many of our native astringents, such as statice, geranium, &c. a change which its variable character would leave little cause to regret.

LACTUCARIUM.

Lactucarium.

Common garden lettuce, like many plants of its class, exudes a milky juice on being wounded after it is fully grown. This juice concretes, on exposure to the air, into a brownish, bitter substance, resembling opium in some of its characters. It is most abundant when the plant is in flower, and least so while the leaves are young, or when they are *etiolated* by heading. *Lactucarium* has the colour, and in some degree the taste and odour of opium, for which it has been proposed as a substitute by Dr. Coxe and Dr. Duncan. It has been said to contain morphia in addition to its other component parts. It acts as a soporific, and has been thought useful in phthisis as a palliative. *Dose*, one or two grains.

LACTUCA ELONGATA.

Wild Lettuce.

This is a tall, lactescent, native plant. It is substituted for the *Lactuca virosa* of Europe, which it somewhat resembles in its properties, though of inferior strength. I have no personal experience with this plant, but am informed by physicians who have tried it, that it is anodyne, and promotes the excretions of the skin and kidneys. An extract made by inspissating the expressed juice may be given in *doses* of from five to fifteen grains. The concrete, lactescent juice would probably be found much stronger.

LAURUS CASSIA.

Cassia Bark.

This bark is usually viewed as an inferior kind of cinnamon, which spice it greatly resembles in its sensible properties, being, however, less agreeable to the taste, more pungent and slimy when chewed. The bark is not divested, like cinnamon, of its outer coating, and to this circumstance some have ascribed all the difference between the two articles, supposing them actually to proceed from the same tree. The inner portion of cassia bark contains its chief strength, and closely resembles cinnamon in its properties. Its medicinal qualities and *dose* are essentially the same. *Cassia buds* contain the same aromatic oil with the bark, and have been supposed to be the flower buds of the cinnamon tree.

LAVANDULA.

Lavender.

Lavender is a shrubby plant of the south of Europe, capable of being cultivated in most parts of the United States, and in fact frequently found in our gardens. The flowering spikes should be cut for use in dry weather, while they are beginning to expand. The flowers have an agreeable, fragrant odour, and a pungent, bitterish taste. These properties reside in a volatile oil. Lavender is a warm stimulant and diaphoretic, and is employed, on account of its agreeable taste, as an adjunct to various medicines. It is rarely given alone in substance.

LICHEN.*Iceland Moss.*

ORIGIN. This cryptogamous plant is found in most mountainous tracts, throughout northern Europe, and is particularly abundant in the island, the name of which it bears. In this country I have met with it on the White Mountains, and in different parts of the New England states.

QUALITIES. It is mucilaginous and bitter. It communicates these qualities to boiling water, which becomes strongly impregnated with the bitter, and, on cooling, is converted into a soft solid, like jelly. The gelatinous portion is precipitated by infusion of galls. According to Proust, 100 parts of lichen afford 64 of a substance insoluble in hot water, somewhat resembling vegetable gluten; 33 parts of a matter soluble in hot water, resembling starch; and 3 parts of bitter extractive.

USES. This lichen is nutritive, tonic and demulcent. In the north of Europe it has for a long time been resorted to as a medicine in pulmonary complaints; and more recently it has acquired in England considerable reputation as a palliative in phthisis. Its powers in that disease have, no doubt, been overrated; yet it often proves highly grateful to phthisical patients, to whom it appears nutritive and tonic, without having any tendency to aggravate the hectic symptoms. In inflammations confined to the mucous membrane of the lungs, it is a useful demulcent.

EXHIBITION. When intended to act as a tonic, the simple decoction may be used, in such *doses* as are agreeable to the stomach. But when employed as an article of diet, the plant should be bruised and macerated cold, in several successive waters, to extract a part of its bitterness, before it is boiled to a jelly. In this way the Laplanders prepare it, who use it in various ways as food.

LIMON.

Lemon.

ORIGIN. The lemon tree derives its specific name from the country of Media, from whence it was brought into Italy by the Romans, after the time of Pliny. It is now cultivated in most warm countries.

QUALITIES. The peel of lemons is bitter and aromatic, and is occasionally added to stomachic medicines. Lemon juice is one of the most grateful vegetable acids. It owes its qualities to the citric acid, which it contains in combination with water, mucilage, some extractive and sugar. The juice is prone to spoil by keeping, on which account a formula has been introduced for obtaining the pure citric acid in a crystallized state.

USES. Lemon juice, largely diluted with water, is used as a refrigerant drink in febrile complaints. It may be given freely in such cases, when not contraindicated by diarrhœa, or pains of the stomach and bowels. In long sea voyages it is relied on as a preventive and remedy for scurvy. Mixed with common sea salt, and diluted with water, it forms a useful gargle in different forms of cynanche; and has obtained much reputation in warm climates in remittent fevers, dysentery and diabetes. The effervescing mixture, formed by the extemporaneous addition of a table spoonful of lemon juice to a dozen or fifteen grains of subcarbonate of potass, previously dissolved in water, is useful to allay vomiting, and promote diaphoresis. The effervescence is more brisk, if a scruple of the carbonate is used instead of the subcarbonate.

LIMONIS OLEUM.

Oil of Lemon.

The rind of the lemon is covered with little vesicles, containing a delightfully fragrant, volatile oil. This, when separated by

distillation, is highly prized as a perfume, and is used in pharmacy to improve the flavour of compound medicines, and to conceal the smell of offensive ointments. Like other volatile oils, it is stimulating and diaphoretic, if taken internally, even in minute doses.

LINI SEMINA.

Flaxseed.

The seeds of common flax contain about one sixth part of their weight of fixed oil ; besides which their external coating abounds with a mucilaginous substance, which is extracted nearly pure by boiling water, giving it a ropy consistence and a mawkish taste. Flaxseed tea is a common demulcent, very useful in catarrh and pneumonia, in dysenteric affections, and particularly in strangury and other inflammations of the urinary passages. It is a convenient vehicle for opiate injections. When the seeds are boiled, a portion of the oil, as well as mucus, is communicated to the decoction.

LINI OLEUM.

Flaxseed Oil. Called Linseed Oil.

Common linseed oil has a disagreeable odour and taste. It boils at 600° of Fahrenheit, and is not congealed by any cold above 0°. Four ounces of alcohol dissolve one drachm of it, but the same quantity of ether takes up a fluidounce and a half. It thickens, becomes very tenacious, and finally dries, either by long boiling, or by exposure to the air. Combined with the metallic oxides, it forms plasters. As a vehicle for colouring substances, it is extensively used in the arts. The cold-pressed oil has the least colour and taste. Like other fixed oils, this oil is laxative in the *dose* of an ounce ; but, on account of its disagreeable taste,

it is seldom used internally. Externally it forms an emollient application, which has acquired considerable repute in cases of burns and scalds.

LINIMENTA.

Liniments.

Liniments are fluid, oily preparations, intended as expeditious dressings for large surfaces, or as convenient applications to be rubbed on the skin, with a view to their medicinal effects. They are most conveniently applied with flannel.

LINIMENTUM AMMONIÆ. *Liniment of Ammonia.*—Under the name of *Volatile liniment*, this preparation and others of less strength are much used as external stimulants in sore throats, rheumatism, &c. The ingredients unite and form a white, saponaceous compound, which, if the water of ammonia be good, acts almost immediately on being applied to the skin. It should not be applied about the neck and chest in pulmonary complaints, as the vapour of the ammonia is apt to excite coughing.

LINIMENTUM AMMONIÆ ET ANTIMONII TARTARIZATI. *Liniment of Ammonia with Tartarized Antimony.*—From the active nature of its ingredients, this seems calculated for an external stimulant of great power. It is probable, however, that its activity is modified by the formation of new chemical compounds.

LINIMENTUM AQUÆ CALCIS. *Liniment of Lime Water.*—This saponaceous liniment is a popular and very useful application in cases of burns and scalds. It is gently astringent, and serves to moderate the suppurative discharge, which is apt to be profuse in these cases.

LINIMENTUM CAMPHORATUM. *Camphorated Liniment.*—Camphor, dissolved in oil, forms a liniment well adapted to rheumatism, sprains, glandular swellings, &c.

LINIMENTUM CANTHARIDUM. *Liniment of Cantharides.*—This liniment is one of the most powerful epispastics. As the activity of flies is liable to be diminished by too much heat, it is best to prepare this article at a temperature below that of boiling water. See *Cantharides*.

LINIMENTUM SAPONIS CAMPHORATUM. *Camphorated Soap Liniment. Opodeldoc.*—This is one of a variety of preparations sold under the name of opodeldoc, and which have long been popular as stimulant and anodyne applications in sprains, rheumatism, and other local pains.

LINIMENTUM SAPONIS ET OPII. *Liniment of Soap and Opium.*—This resembles the preceding article in its uses and effects. The addition of opium is supposed to increase its anodyne powers; but that it can have this effect in a great degree, is not very probable.

LINIMENTUM TABACI. *Liniment of Tobacco.*—This liniment, or, more properly, ointment, is employed in tinea capitis, herpes, and other cutaneous affections; care being taken not to apply it to so large a surface at once, as to occasion constitutional symptoms from the tobacco.

LINIMENTUM TEREBINTHINÆ COMPOSITUM. *Compound Liniment of Turpentine.*—This liniment was introduced by Dr. Kentish as an application to burns and scalds. Much diversity of opinion, however, has prevailed in regard to the propriety of the terebinthinate practice in such cases.

LIRIODENDRON.

Tulip Tree.

This lofty tree, distinguished by its fine flowers and truncated leaves, is a native of the American forest, as far north as New England. Its bark has a very bitter taste, and a strong, aromatic pungency, which latter property appears to reside in a volatile oil. Resin, mucus and extractive are also present. Water extracts its bitterness, but diluted alcohol is the most universal solvent of its properties. Medicinally considered, the bark of this tree is a stimulating tonic and diaphoretic. In various parts of the United States it has been successfully employed in intermittent fever, given in the same way as the Peruvian bark. In chronic rheumatism it acts usefully as a warm sudorific. A saturated tincture may be given in *doses* of a fluidrachm; or a decoction may be prepared and exhibited, like that of cinchona.

LOBELIA.

Indian Tobacco.

The *Lobelia inflata* is an annual, American plant, found in a great variety of soils throughout the United States.

QUALITIES. It is lactescent, like many others of its genus. When chewed it communicates to the mouth a burning, pungent sensation, which remains long in the fauces, resembling the effect of green tobacco. The plant contains caoutchouc, extractive, and an acrid principle, which is present in the tincture, decoction, and distilled water.

USES. The lobelia is a prompt emetic, attended with narcotic effects during its operation. If a leaf or capsule be held in the mouth for a short time, it brings on giddiness, head-ache, a

trembling agitation of the whole body, sickness, and finally vomiting. These effects are analogous to those which tobacco produces in the unaccustomed. If swallowed in substance, it excites speedy vomiting, accompanied with distressing and long-continued sickness, and even with dangerous symptoms, if the dose be large. On account of the violence of its operation, it is probable that this plant will never come into use for the common purposes of an emetic. It is, however, entitled to notice as a remedy in asthma and some other pulmonary affections. It produces relief in asthmatic cases, sometimes without vomiting, but more frequently after discharging the contents of the stomach. On account of the harshness of its operation, it is reluctantly resorted to by patients, who expect relief from any milder means. It, however, certainly relieves some cases, in which other emetic substances fail. In small doses the lobelia is found a good expectorant for pneumonia, in its advanced stages, and for catarrh. In rheumatism it has also been found of service.

EXHIBITION. The strength of the lobelia varies with its age and other circumstances. In some instances a grain will produce vomiting. The tincture is most frequently given in asthma, in doses of about a fluidrachm.

MAGNESIA.

Magnesia.

When common carbonate of magnesia is exposed to heat for a sufficient time, the carbonic acid is driven off in the form of gas, and magnesia, in a state nearly of purity, remains. From the process employed to obtain it, it is often known by the name of *calcined magnesia*. When pure, it is the oxide of a metal discovered by Sir H. Davy, and called *Magnesium*.

QUALITIES. Magnesia is a white, soft powder, having a slight, subalkaline taste, and capable of turning vegetable blues to green. Its specific gravity is about 2.3. It is nearly *insoluble*, but, like

lime, is more soluble in cold water than in warm. According to Mr. Fyfe's experiments, it requires 5142 parts of water for its solution at 60°, and 36000 parts at 212°. The cold solution becomes turbid on being raised to the boiling point. But, notwithstanding its difficult solution, it increases the solubility of camphor, opium and resins in water, and hence its use in infusions of bark, &c.

USES AND EXHIBITION. These are the same with those of the *Carbonate of Magnesia*; which see. It has, however, the superior advantage, that it does not occasion flatulence, which the carbonate is liable to do.

MAGNESIÆ CARBONAS.

Carbonate of Magnesia.

There is some reason for denominating the common article of the shops a subcarbonate of magnesia, since a perfect crystallized carbonate may be obtained by a suitable process. But, as it occurs in commerce, it is a mechanical mixture of magnesia in different states of combination, together with occasional admixture of other substances; so that Dr. Thomson is of opinion, that it cannot be considered as a definite chemical compound.

ORIGIN. This article, as most frequently met with in commerce, is prepared at salt manufactories from the *bittern*, which remains after the crystallization of common salt from sea water. This bittern is heated to 212°, a solution of common pearlash is added, and the fire withdrawn. Carbonate of magnesia is deposited, and is afterwards separated from the liquid by a linen strainer. It is subsequently washed by repeated affusions of pure boiling water, and dried with a gentle heat. Sometimes the bittern is decomposed by a crude subcarbonate of ammonia obtained from the distillation of bones in iron cylinders. Muriate of ammonia and carbonate of magnesia result. The former is evaporated to dryness, mixed with chalk and sublimed. Sub-

carbonate of ammonia is thus recovered, with which a new quantity of bittern may be decomposed, and the process repeated indefinitely, forming a very economical method. Sometimes magnesian limestones are acted upon by the bittern, and the article produced in the large way. The Edinburgh formula is as follows :

Take of Sulphate of magnesia, four parts ;

Subcarbonate of potass, three-parts ;

Boiling water, a sufficient quantity.

Dissolve the salts separately in twice their weight of water, and strain, or otherwise free from impurities ; then mix them, and instantly add eight times their weight of boiling water. Boil the liquor for a short time, stirring it ; then let it remain at rest until the heat be a little diminished, and strain it through linen, upon which the carbonate of magnesia will remain. The carbonate, after being well washed with pure water, is to be dried with a gentle heat.—Distilled or rain water should be used in the foregoing processes, and the solution of subcarbonate of potass should be exposed to the air, or a stream of carbonic acid gas, sometime before it is used.

QUALITIES. It is inodorous and nearly insipid, white, opaque and extremely light. It is nearly insoluble in water, requiring 2493 parts of cold, and 9000 parts of boiling water for its solution. It effervesces with acids. It is decomposed by all the acids, alkalies, neutral salts, lime, barytes, alumina, and by a strong heat.

USES. Carbonate of magnesia is most used as an antacid and laxative. When it meets with an acid in the stomach, it combines with it, forming a purgative salt ; but when no acidity is present, it is nearly inert. It is on this account an uncertain cathartic, and is to be resorted to by those only, who suffer from acidity, or with whom other cathartics disagree. In some patients this medicine occasions troublesome flatulence, by the disengagement of its carbonic acid in the alimentary canal. In such cases the pure calcined magnesia is to be preferred.

Magnesia and its carbonate have been substituted for alkalies in the treatment of calculous disorders, particularly in cases of

lithic calculus. But some caution is requisite in using it, and Dr. Marcet supposes that much evil has resulted from its improper administration. Where it is prescribed without any previous knowledge of the nature of the calculus, the chances that it will prove injurious or otherwise are about equal ; because this earth constitutes a basis in one of the most common calculi, viz. the ammoniaco-magnesian phosphate. The neutralizing of acids by it in the alimentary canal may prove useful or detrimental, according to the nature of the stony concretion.

EXHIBITION. For a cathartic, from half a drachm to two drachms form a *dose*. In lithic calculus, from a scruple to a drachm has been proposed by Mr. Hatchett. Its most convenient vehicles are water and milk. The habitual or long-continued use of magnesia has sometimes occasioned the accumulation and consolidation of large masses in the intestines, a remarkable case of which kind is detailed in Brande's Journal, Vol. I.

MAGNESIÆ SULPHAS.

Sulphate of Magnesia. Called Epsom Salt.

ORIGIN. This salt is found native, both pure and in combination with gypsum. It was also, for a considerable time, made by evaporating the water of Epsom springs in England, whence its name is derived. At the present day, most of the Epsom salt of commerce is made from the bittern, which remains after the formation of sea salt. This bitter water is a concentrated solution of several salts, the affinities of whose elements are remarkably modified by temperature. At a warm temperature, sulphate of magnesia and muriate of soda are produced, while at temperatures below 32°, the reverse takes place, resulting in the production of sulphate of soda and muriate of magnesia.

QUALITIES. Sulphate of magnesia exists usually in the form of small, needle-like crystals ; but the form of its regular crystal

is a quadrangular prism acuminated by four planes. Its taste is bitter and nauseous. It is *soluble* in its own weight of water at 60°. When pure, it effloresces in the air, but it is commonly united with muriate of magnesia, which disposes it to deliquesce, in which case it must be kept in tight vessels. It is decomposed by the alkalies and their carbonates, lime water, &c.

USES. Epsom salt is an excellent cathartic, operating with mildness and certainty, and frequently remaining on the stomach when other purgatives are rejected. It is also diuretic. Its disagreeable taste, however, has rendered it less popular than some of the other saline cathartics.

EXHIBITION. An ounce, dissolved in water, is a medium *dose*. In irritable states of the stomach, it should be taken in divided doses. The taste is best concealed by holding brandy in the mouth, just before the salt is taken.

MAGNOLIA.

Magnolia.

The magnolia tree, of which our country possesses many species, is not less remarkable for the beauty of its flowers, than for the aromatic qualities of its bark. Most of the species are bitter and spicy to the taste, and agree in their medicinal effects, though *M. glauca* is the one which has been most frequently used. The aroma resides in a volatile principle, which appears to be an essential oil. Magnolia bark is an aromatic tonic, resembling cascarilla and canella in its character. It has been advantageously used in rheumatism as a warm stimulant and diaphoretic, and in intermittent and remittent fevers as a tonic. From one to two scruples may be given at a *dose*. In rheumatism the tincture has been preferred.

MANNA.*Manna.*

ORIGIN. Various trees, principally species of ash, afford manna in small quantities; but the common drug is supplied almost exclusively by the *Fraxinus ornus*. It exudes spontaneously from the trunk and branches of this tree in dry, warm weather, and concretes into whitish tears. It is obtained, however, in larger quantities by making artificial incisions in the bark. Some of it is scraped off into baskets, constituting the *manna grassa*, or fat manna; while a finer sort is collected upon straws and pieces of wood, forming the canulated or flaky manna. Sicily and Naples furnish the principal supply of commerce.

QUALITIES. The choicest manna is in oblong pieces or flakes, moderately dry, friable, pale and semitransparent. It is considered of inferior quality, although not less purgative, if moist, unctuous, or very dark coloured. The taste of manna is sweet, but somewhat nauseous. It is wholly *soluble* in water, and hot alcohol.—Thenard, who has analyzed manna, states that it is made up principally of two substances; the one crystallizable and sweet, to which he gives the name of *mannite*; the other uncrystallizable and mucous. He presumes that this last contains a third, on which the taste and smell depend. The purgative property resides in the uncrystallizable part, and it is found that mannite, also *manna in tears*, which is chiefly composed of it; are scarcely, if at all, purgative. *Mannite* is deposited by cooling from the hot alcoholic solution of manna. It differs from sugar in not being soluble in cold alcohol, and in not undergoing readily the vinous fermentation.

USES. Manna is a feeble purgative, requiring large doses for its operation, and more frequently given as an adjunct to senna and other cathartics, than administered alone. It is apt to occasion heartburn, flatulence and griping.

EXHIBITION. An ounce or two are necessary to operate on an adult. From its resemblance to sugar, it is readily eaten by children, to whom it proves laxative in the *dose* of a drachm and upwards.

MARANTA.

Arrow Root.

The *Maranta arundinacea* is a native of South America, and is now cultivated in the West India Islands, and in some of the southern parts of the United States. The roots of this plant are ground or beaten and agitated with water, until that liquid becomes turbid with their farinaceous portion. It is then poured off, and the fine powder which subsides is dried and constitutes the arrow root of commerce.

QUALITIES. This substance is almost pure *fæcula* or starch, being insoluble in alcohol, ether and cold water, but readily dissolving in hot water, forming a pearly, gelatinous solution, with little taste or smell.

USES. Arrow root is nutritious and demulcent, and forms an important article in the diet of the sick. It is peculiarly adapted for the support of patients in fever, being sufficiently nutritive, and, if not digested, being less apt to occasion distress by its fermentation, than any animal substance, and than most articles derived from the vegetable kingdom. It is a popular and useful addition to the diet of infants recently weaned. In common with other demulcents, it is useful in allaying the irritation of strangury, dysentery and catarrh.

EXHIBITION. A table spoonful of arrow root is sufficient to thicken a pint of water. It should first be thoroughly mixed with a small quantity of cold water, and then added, with stirring, to the rest of the water while boiling. It is rendered more palatable by a little wine and spice.

MARRUBIUM.

Horehound.

Horehound is a cultivated plant, very bitter, and, in its recent state, aromatic. It is tonic, diuretic and laxative, and is a popu-

lar remedy in coughs, catarrh, and catamenial irregularities; being given in infusion.

MEL.

Honey.

ORIGIN. Honey is secreted in the nectaries of flowers, and is collected from thence by the bees. It probably undergoes some change in the bodies of these insects before it is excreted by them and deposited in the comb. Honey is often impregnated with the flavour of particular plants, which predominate in the locality where it is collected. It also varies in consistence and colour. That imported from the West Indies is thinner and less sweet than the honey of the United States. The purest honey is separated from the combs by dripping, without pressure.

QUALITIES. Honey has a fragrant odour, and a sweet, acidulous taste. Its colour with us is commonly yellow. In Abyssinia, Mr. Bruce met with honey which was red as blood. When fresh it is a viscid fluid, sufficiently thin to flow readily; it stiffens with cold, and by age and exposure is partly crystallized. It contains sugar, mucilage, wax, an acid, and commonly some essential oil. It undergoes the vinous and acetous fermentations; and largely diluted with water and fermented, it forms *mead*.

USES. It is used in pharmacy as a vehicle for different medicines, chiefly of the expectorant kind. It is nutritive in small quantities, and laxative in large ones. It is a popular addition to various demulcents for catarrh, and gargles for sore throats and aphthous affections.

MELLITA.

Prepared Honeys.

MEL DESPUMATUM. *Clarified Honey.*—This is honey freed from those impurities, which are light enough to rise to the surface when it is liquified by heat.

MEL SCILLÆ ACETATUM. *Acetated Honey of Squill. Called Oxymel of Squill.*—This is an old and popular preparation of squill, employed as an expectorant, and sometimes as an emetic, in asthma, catarrh, hooping cough, &c. It is a more uncertain preparation than the *Syrup of Squill*, since the consistence to which it is to be boiled is left discretionary with the apothecary, and the long continuance of heat is apt to diminish the strength of the squill. Perhaps, to render the strength uniform, it might be well to limit the boiling to one minute. *Dose*, from a half to two fluidrachms.

MEL SCILLÆ COMPOSITUM. *Compound Honey of Squill.*—This preparation has been used in croup, and appears well suited to the treatment of mild cases, which are susceptible of relief from remedies of the emetic class. *Dose*, from ten minims to a fluidrachm.



MENTHA PIPERITA.

Peppermint.

Peppermint is an European plant, frequently cultivated in the United States, in most parts of which it succeeds perfectly well. It is said that the roots, when cultivated, should be transplanted every three years; otherwise it is apt to degenerate into the flavour of spearmint.

QUALITIES. The odour of both the recent and dried plant is a penetrating, grateful aromatic. The taste is pungent, warm and bitterish, followed by a sensation of coldness, when air is admitted into the mouth. These properties depend chiefly upon its volatile oil; which see.

USES. Peppermint is a warm stimulant to the stomach, and afterwards to the rest of the body, holding a first rank in the list of medicines called carminatives. It is calculated to allay spasmodic affections of the stomach and bowels, obviate nausea, and expel flatulence. It forms a useful adjunct to an emetic in

persons who are liable to cramps during the operation of those medicines.

EXHIBITION. See the *oil* and *tincture*.

MENTHA VIRIDIS.

Spearmint.

This article, together with a long list of others botanically allied to it, resembles peppermint in its medicinal properties, being only somewhat less agreeable to the taste. It is applicable to the same purposes. Spearmint is now naturalized in the United States.

MENYANTHES.

Buckbean.

The *Menyanthes trifoliata* is common to the northern parts of Europe and America, growing in wet situations. The root is horizontal and jointed, shrinking to a quarter of its size in drying. It has an intensely bitter taste residing in a resinous, extractive matter, *soluble* in alcohol, and partially in water. This root is entitled to a high place in the list of tonic medicines. When given in small doses, about ten grains, it imparts vigour to the stomach and strengthens digestion. Its tincture, moderately used, has the same effect. Large doses, such as a drachm of the powdered root, or two or three gills of a saturated decoction, produce vomiting and purging, and frequently powerful diaphoresis. In this respect it resembles many other bitters, and, like them, is prevented by its bulk and disagreeable taste from being much used as an evacuant.

We are told by authors that this root has been employed with benefit in intermittent and remittent fevers. Boerhaave, in his own case of gout, was relieved by drinking the juice of the plant mixed with whey. Other physicians have found it useful in

keeping off the paroxysms of that complaint. In cutaneous diseases, rheumatism, dropsy and worms, it has also had, at different times, a share of reputation.

MEZEREON.

Mezereon.

ORIGIN. The *Daphne mezereon* grows native in the north of Europe, and is frequently cultivated in gardens, in this country, on account of its early, rose-coloured flowers, which appear in March, long before the leaves. The roots of this shrub are dug for use in autumn, after the leaves have fallen.

QUALITIES. The inner bark of this shrub is highly acrid, creating in the mouth and fauces a burning sensation, which remains for a long time. Applied to the skin, it excites inflammation and blistering. The fruit and some other parts, if taken in large quantities, operate as an acrid poison. The bark retains its pungency when dried. Water and vinegar have been found to extract its properties. By digesting the bark in alcohol, then evaporating the liquid to separate the resin, and diluting the residual fluid with water; filtering and adding acetate of lead; Vauquelin obtained a copious yellow precipitate, which, when freed from the lead by means of sulphuretted hydrogen, he found to be a vegetable principle, *sui generis*, to which he has given the name of *Daphnin*.

USES. This medicine is a strong general stimulant; in large doses acting by vomiting and purging; and in smaller ones determining powerfully to the surface. Its most efficacious use is in chronic rheumatism, which disease it occasionally relieves, like other stimulants of its class. The confidence, which it formerly possessed, as a remedy in syphilis, scrofula and cutaneous diseases, is now very much impaired. It is used as a topical stimulant in paralytic affections of the mouth.

EXHIBITION. Dose, in powder, from one to ten grains in milk or jelly. See *Decoction*.

MISTURÆ.

Mixtures.

Mixtures are liquid preparations, in which some insoluble ingredients are held in suspension by viscid fluids. The name includes what have been called *Emulsions*, consisting of oils diffused through water by the aid of gummy or saccharine ingredients. Mixtures are extemporaneous preparations, and should be shaken before they are used.

MISTURA AMMONIACI. *Ammoniacum Mixture*.—This mixture, from its resemblance to milk, has been called *Lac ammoniaci*. It is a white liquid, holding the resinous particles of the ammoniacum suspended by the gummy parts. It is a convenient mode of exhibiting ammoniacum as an expectorant. *Dose*, half a fluidounce.

MISTURA AMYGDALÆ. *Almond Mixture*.—This is a pleasant, demulcent liquid, to be drunk in strangury, catarrh, and various inflammatory complaints.

MISTURA AMMONIACI ET ANTIMONII. *Mixture of Ammoniacum and Antimony. White Mixture*.—This is a useful expectorant and demulcent in catarrh, taken in the *dose* of half a fluidounce three times a day or oftener.

MISTURA CALCIS CARBONATIS. *Mixture of Carbonate of Lime*.—Under the name of *Chalk mixture*, this medicine has acquired popularity in the diarrhœa of children, after evacuants. It is demulcent, antacid, and pleasant to the taste. *Dose*, about a fluidrachm for infants.

MISTURA CAMPHORÆ. *Camphor Mixture*.—The more equally camphor is diffused in the stomach, the more favorably does

it exert its effects, and the less liable is it to occasion nausea or oppression. On this account the *mixture*, in the *dose* of about two fluidrachms, is one of the best forms for its exhibition.

MISTURA FERRI COMPOSITA. *Compound Mixture of Iron. Called Myrrh Mixture.*—This compound has long been known under the name of *Griffith's myrrh mixture*, or *Antihectic mixture*. It was probably, in the first instance, an accidental or arbitrary combination of ingredients made without reference to their chemical relations. It has however occupied a considerable share of the attention of medical chemists, being condemned or applauded, according to the satisfaction derived from tracing its various decompositions. It is rendered stimulating by the myrrh and lavender, and slightly tonic by the carbonate of iron, which it forms. It is used in amenorrhea, advanced phthisis, &c. in a *dose* of one or two fluidounces.

MISTURA MAGNESIÆ. *Magnesia Mixture.*—This is a pleasant antacid and laxative, in the *dose* of about two fluidounces.

MISTURA MOSCHI. *Musk Mixture.*—Musk is conveniently exhibited in this form, the *dose* of the preparation being two fluidounces.

MISTURA ZINCI SULPHATIS. *Sulphate of Zinc Mixture.*—A fluidounce of this liquid contains about a scruple of sulphate of zinc, and may be taken at once for an emetic in any urgent case, and repeated if necessary. The spirit of lavender serves to cover the taste of the metallic salt.



MONARDA.

Monarda.

This is a very pungent aromatic, growing native in the United States, with various other species, some of which resemble it in

efficacy. In different parts of the country it is known by the names of *Mountain-balm* and *Horsemint*. It is a warm diaphoretic, anti-emetic and carminative; used in flatulent colics, rheumatism, &c. The distilled oil, according to Dr. Atlee, is one of the most powerful rubefacients. See *Distilled oils*.

MOSCHUS.

Musk.

ORIGIN. The musk deer, *Moschus moschiferus*, inhabits the mountains of eastern Asia, and particularly the sides of the lofty Himalaya range, on which it ascends to a great height. Musk is secreted by this animal in an oval bag, flat on one side and convex on the other, about three inches long, situated between the navel and prepuce in the male. The best musk comes from China, and inferior sorts from Bengal and Russia. As the high price of musk often leads to its adulteration, the bags should be carefully examined to see that they have not been opened. The musk should not emit a fetid smell when heated, nor melt so as to run before it inflames.

QUALITIES. Musk exists in the bags in the form of grains concreted together, dry, slightly unctuous, and free from grittiness. Its odour is powerful and penetrating, but not disagreeable in small quantity; the taste is bitterish, and the colour brownish-red. It burns with a white flame, leaving a spongy coal. Boiling water dissolves a part of it, alcohol still more, and ether more than either. According to Mr. Thomson, it consists chiefly of a resin combined with a volatile oil, and a mucilaginous, extractive matter; together with some albumen, gelatin, muriate of ammonia, phosphate of soda, and an uncombined acid.

USES. Musk is considered stimulant, cordial and antispasmodic. It is given in hysteria and various forms of nervous weakness; in gastrodynia; in convulsions where palliatives are indicated; and even in tetanus and epilepsy. It has also been

commended in the low stages of typhus, as a remedy for the symptoms of delirium, subsultus, &c. Its scarcity and high price,* however, must always limit its use; and we shall not, perhaps, regret its absence, while we have the more effectual antispasmodics, opium, wine, camphor, ammonia, &c. Musk is used as a perfume, and has the property, in minute quantities, of greatly enhancing the odour of other perfumes.

EXHIBITION. From ten to thirty grains may be given three times a day in a bolus or mixture.

MYRISTICA.

Nutmeg.

ORIGIN. The nutmeg tree is cultivated in the Molucca Islands, from whence the principal supply has long been derived. It bears a drupaceous fruit, at the centre of which the *nutmeg* exists as a nucleus, immediately invested with a secondary covering, or arillus, which is the *mace*. Previously to exportation, the nutmegs are exposed to heat and smoke for three months, then steeped in a strong mixture of lime and water, after which they are cleaned and packed in boxes.

QUALITIES. The nutmeg has a very agreeable, spicy taste and odour. Its structure is fibrous and cellular, and filled up with oily matter. Mr. Thomson states its chief component parts to be starch, gum, volatile oil, wax, and a fixed oil.

USES. Nutmeg is chiefly employed as a spice, and an adjunct to insipid or unpleasant medicines. It is stimulant and anodyne; and, if a drachm be given, it is liable to produce narcotic symptoms, such as stupor and subsequent delirium.

EXHIBITION. The quantity taken at once should not exceed a scruple.

* Musk sells for about its weight in gold.

MYRISTICÆ OLEUM.

Oil of Nutmeg. Called Oil of Mace.

Nutmegs contain about one third of their weight of a sebaceous, fixed oil, and one thirty-second part of volatile oil. The latter may be separated by distillation, and appears to contain the active properties of the article. The former is obtained by expression, containing also the volatile oil united with it, and is known in commerce by the name of *Oil of mace*. In our climate it has the consistence of spermaceti; is white, variegated with brown; has an agreeable odour, and an oily, bitterish, pungent taste. It appears to be a compound of a fixed and volatile oil, united with a portion of wax. Its properties resemble those of the nutmeg, but its efficacy is not proportioned to its price.

MYROXYLON.

Balsam of Peru.

The warmer parts of South America produce the tree from which this balsam is obtained. It is procured by making incisions in the bark, and also by boiling the twigs in water. This balsam has a fragrant smell, and a bitterish, pungent taste. It is viscid, of a deep reddish-brown colour, and the consistence of honey. It is chemically a true balsam, consisting of a resin, volatile oil and benzoic acid. Balsam of Peru is a heating stimulant, increasing the discharges of the skin, kidneys, and mucous membrane of the lungs. It is given in chronic rheumatism, gonorrhea and fluor albus. It has been ranked among the expectorants, but should not be given during active inflammation of the substance of the lungs. Half a fluidrachm is a medium dose.

It has been lately asserted, that the balsams of *Peru* and of *Tolu* are the products of the same tree. See *Tolutanum*.

MYRRHA.

Myrrh.

ORIGIN. Myrrh is imported from Turkey and the East Indies, but the plant from which it is obtained is not yet satisfactorily known. It is said to grow in the eastern parts of Arabia Felix, and of Abyssinia.

QUALITIES. It comes in small, roundish or irregular pieces, of a reddish-yellow colour, translucent, breaking with a resinous fracture, and easily pulverized. The smell is fragrant, and the taste agreeably aromatic and bitter. It does not melt when heated, and is not very inflammable. Water, alcohol and ether dissolve portions of it. Its constituents are resin, an essential oil heavier than water, extractive, and vegetable mucus. Diluted alcohol is its best solvent.

USES. Myrrh is stimulant and tonic. In small doses it excites the stomach, quickens the action of the secretories, and proves expectorant and diaphoretic. Large quantities produce more arterial excitement, and increase the heat of the body. This drug enters into the composition of a number of very common and popular medicines. Combined with aloes, the taste of which it covers by its own more agreeable flavour, it is a cordial cathartic and emmenagogue. With iron and other tonics, it has been thought useful in supporting the strength under phthisis. Its solutions are advantageously applied as topical remedies to ulcers of the mouth and throat.

EXHIBITION. A scruple, more or less, may be given in powder, but the liquid preparations are generally preferable.

NUX VOMICA.

Vomic Nut.

ORIGIN. The *Strychnos nux vomica* is a tree of the East Indies, bearing a round, orange-coloured fruit, the seeds of which

are the officinal vomic nuts. Upon the continent of Europe they are more in use than in England or this country, at the present day.

QUALITIES. These nuts are roundish, hairy, and ash-coloured. When the hairiness is scraped off, the best nuts are of a yellowish colour, and heavy. The taste is nauseous and bitter. An alkaline substance has been obtained from these seeds and those of *Ignatia amara* L. by the French chemists Pelletier and Caventou; to which the name of *Strychnia* has been given. It crystallizes in very small, four-sided prisms, terminated by four-sided, low pyramids. It is white, without smell, and intensely bitter, leaving a metallic taste in the mouth. This is probably the most powerful of all known tastes, being perceptible when a grain is dissolved in eighty pounds of water. It is neither fusible nor volatile without decomposition. It is soluble in alcohol, but scarcely soluble in water. With acids it forms neutral salts, which, as well as their base, become blood-red by the action of concentrated nitric acid. It is violently poisonous, and destroys small animals, with symptoms like locked jaw, in a few minutes, in the dose of half a grain. *Strychnia* is said to exist in the nut in combination with a peculiar acid, to which the investigators give the name of *Igasuric* acid.

USES, &c. The vomic nut is a narcotic, formerly recommended in epilepsy, mania, &c. with other vegetable articles of its class. In the French hospitals it has lately acquired considerable credit in cases of partial paralysis, given in doses of four or five grains of the powder, in pills, during the day. From some cases cited in Murray's *Apparatus Medicaminum*, it appears that a *dose* of twenty, or even fifteen grains, cannot be given with safety.

OLEA DISTILLATA.

Distilled Oils.

Volatile oils exist in various parts of vegetables, from which they can be obtained pure only by distillation. Leaves and herbs

yield their volatile oil in this process without any previous preparation ; but woods and barks should be first subdivided by rasping. When introduced into the still, they should be pressed down and covered with water. The head of the still being luted on, a gentle heat should be applied so as to keep the water at or near the boiling point, and continued as long as the vapour which comes over contains the taste and smell of the oil. The liquid collected in the receiver will be found to consist of water and oil. These may be separated from each other by putting the whole liquid into a funnel, and drawing off the lower fluid from the bottom.

Volatile oils have a strong, penetrating odour, and a pungent taste. Their specific gravity is various, some being lighter, others heavier than water. They are highly inflammable. They evaporate readily at common temperatures, although some of them require a heat of above 300° to make them boil. They are readily *soluble* in alcohol, ether and fixed oils, but are very sparingly so in water. When long exposed to the air, they assume a resinous character. They are sometimes adulterated with fixed oils, which may be detected by dropping them on paper, where, if pure, the spots will disappear when held to the fire ; if otherwise, they will leave a greasy stain. Alcohol is discovered by adding water, which, if it be present, occasions a milkiness, and a slight increase of temperature.

These oils are stimulating, heating, diaphoretic and carminative. They are given in emulsion, or dropped on sugar.

OLEUM ANISI. *Oil of Anise.*—Colour whitish ; taste moderately pungent, bitter-sweet ; congeals at 50°. It is one of the mildest volatile oils. Given in flatulent pains, &c. *Dose*, from five to fifteen minims.

OLEUM CHENOPODII. *Oil of Wormseed.*—Pungent, heating ; said to be anthelmintic. *Dose*, about six minims.

OLEUM CUNILÆ. *Oil of Pennyroyal.*—Very acrid and heating. *Dose*, from one to four minims.

OLEUM FENICULI. *Oil of Fennel*.—Colourless; congeals at 50°; taste hot and sweetish. *Dose*, from two to twelve minims.

OLEUM GAULTHERIÆ. *Oil of Partridge Berry*.—Yellowish, pungent and bitter; sinks in water. *Dose*, from two to six minims.

OLEUM JUNIPERI. *Oil of Juniper*.—Greenish-yellow; viscid; a third lighter than water; taste hot; odour like that of turpentine. Stimulating and diuretic. *Dose*, from two to ten minims.

OLEUM LAVANDULÆ. *Oil of Lavender*.—Pale yellow; lighter than water; pungent; fragrant. *Dose*, from one to five minims.

OLEUM MENTHÆ PIPERITÆ. *Oil of Peppermint*.—Colour brownish-yellow, which it loses when exposed to light; very strong and pungent. *Dose*, one or two minims.

OLEUM MENTHÆ VIRIDIS. *Oil of Spearmint*.—Greenish; lighter than water; acrid. *Dose*, from two to four minims.

OLEUM MONARDÆ. *Oil of Monarda*.—Reddish-amber coloured; highly acrid; rubefacient and epispastic. *Dose*, one or two minims.

OLEUM ORIGANI. *Oil of Origanum*.—Yellow; lighter than water; intensely acrid; chiefly used as a local application to carious teeth.

OLEUM PIMENTÆ. *Oil of Pimento*.—Reddish-brown; heavier than water; aromatic and pungent. *Dose*, from three to five minims.

OLEUM ROSMARINI. *Oil of Rosemary*.—Colourless; less agreeable than the plant. Not much used internally, but enters into the composition of liniments.

OLEUM SASSAFRAS. *Oil of Sassafras.* Yellow; viscid; heavier than water. *Dose*, from two to six minims.

OLEUM SUCCINI. *Oil of Amber.*—The oil obtained by the first distillation is thick, dark coloured and fetid. By repeated distillation it becomes thinner. The taste is hot, acrid and unpleasant. It is but partially soluble in alcohol. It is sometimes given in hysteria and convulsive disorders, in the *dose* of five or six drops, but it is oftener used as an external stimulant in rheumatism, &c.

OLEUM SUCCINI OXIDATUM. *Oxidated Oil of Amber.*—This article, from the peculiar odour it exhales, has been denominated *artificial musk*. It was introduced as an antispasmodic in whooping cough, but has not obtained a durable reputation. *Dose*, five or six minims.

OLIVÆ OLEUM.

Olive Oil.

ORIGIN. The olive tree is a native of the south of Europe, and all the countries bordering upon the Mediterranean, and might be cultivated with great advantage in the southern parts of the United States.* The fruit abounds with fixed oil, which is obtained from it by bruising and pressure so regulated as not to break the kernals of the olives. Different degrees of pressure produce oil of different qualities. A sediment of albuminous matter is deposited by rest, from which the oil requires to be poured off.

QUALITIES. Pure olive oil is somewhat viscid, inodorous, insipid, and of a pale, greenish-yellow colour, highly inflammable,

* See a full account of the olive tree by Mr. Hillhouse, in Michaux's North American Sylva.

insoluble in water, and nearly so in alcohol. It congeals at 38° Fahrenheit, and boils at about 600°. By age and exposure, it becomes rancid, sebatic acid and water being formed, and the colour and taste greatly changed.

ADULTERATION. Olive oil is often adulterated with poppy oil and that of other seeds. According to Mr. Brande, this fraud may be detected by the action of nitrate of mercury. For this purpose six parts of mercury are dissolved, without heat, in seven and a half parts of nitric acid, specific gravity 1.36. This solution, shaken with olive oil, becomes solid in a few hours; but, if sophisticated with oil of seeds, it does not solidify it.

USES. In small quantities this oil is nutritious, and has been used with food from time immemorial. By its demulcent power, it allays irritation in catarrh, dysentery and strangury. Given in larger doses than the stomach can digest, it proves cathartic, like the other fixed oils. In cases of poisoning from mineral substances, oil is given freely to sheathe the coats of the alimentary canal, and to hasten the expulsion of the poison. In countries visited by the plague, this oil is often used externally by the inhabitants as a supposed preventive for the contagion. The pharmaceutic application of this substance may be seen under the heads of *Cerates, Ointments, Plasters, &c.*

EXHIBITION. As a demulcent, one or two fluidrachms may be given alone, or with mucilage or sugar; as a laxative, from one to two fluidounces. In cases of poison, it may be given *ad libitum*.

OPIUM.

Opium.

ORIGIN. This very important drug, which, on account of its anodyne and soporific properties, has been celebrated from time immemorial, is the concrete and inspissated juice of a species of poppy, the *Papaver somniferum* of Linnæus. It is procured by evaporating the milky fluid, which exudes when this poppy is

wounded. This juice will issue from any part of the plant, but the capsule and peduncle afford it most abundantly. The poppy comes to its greatest perfection in warm climates; and nearly all the opium of commerce is at present imported from the Levant and from India. Climate, however, affects rather the strength of the drug than the size of the plant; and the report of Chardin, so frequently copied, that poppies in Asia grow to the height of forty feet, is unquestionably a gross exaggeration.

QUALITIES. *Turkey opium* is brought to us in flattish cakes, covered with leaves, among which are frequently small capsules of a species of rumex. It has a peculiar, heavy, strong odour, and a bitter taste, attended with some acrimony when long chewed. The internal colour is reddish-brown. The cakes, when moderately warm, are soft and compressible, but by age and exposure the opium becomes brittle, and capable of being reduced to a yellowish powder. It takes fire easily, and burns with a bright flame. Water, alcohol, ether and acids dissolve portions of it; but it commonly contains about one quarter part of insoluble impurities. Exposure to a heat equal to that of boiling water impairs its narcotic properties, yet distillation does not separate its active ingredients. .

India opium is in round masses, covered with a thick coating of fragments of leaves. Its sensible qualities resemble those of Turkey opium, except that it is somewhat more bitter and less pungent, having a slightly empyreumatic smell. The colour is somewhat darker, and the texture less tenacious. Its watery solution has a deeper colour. It may be completely suspended by trituration in water, whereas Turkey opium leaves a plastic mass similar to vegetable gluten. India opium, in its medicinal effects, is weaker than that of Turkey.

The purest opium is that which the Asiatics call *opium in tears*, and which is the pure, concrete juice of the poppy. But much of the opium of commerce is said to be increased in bulk by the addition of an aqueous extract of the plant procured by evaporating a decoction. The fibrous impurities usually found in opium probably result from the slovenly manner in which it is collected by the Asiatics. Sometimes, however, they result from

fraudulent and intentional adulterations, various inert substances being mixed with opium, and among the rest dried cow dung, for the sake of increasing its amount. The opium of Bengal is annually inspected by order of the government, and large quantities are condemned to be burnt as unfit for exportation. Opium which abounds with impurities, which is of a blackish colour, or has a very strong empyreumatic smell, is to be considered of inferior quality.

Many *chemical analyses* of opium have been made by different experimenters. Among the latest are those of Derosne, Sertuerner and Robiquet. From these it may be inferred, that opium contains extractive matter, mucilage, fœcula, resin, fixed oil, caoutchouc, a vegeto-animal substance, an acid called *meconic*, an alkali called *morphia*, and a separate crystalline substance called *narcotine*. The three last are supposed peculiar to opium.

Meconic acid, so named by its discoverer, M. Sertuerner, from *μνκων*, the Greek name for poppy, is, in its pure state, a colourless solid, crystallizing in long needles, volatile and soluble in water and alcohol. It produces an intensely red colour in salts of iron, oxidized to their maximum. Neither this acid, nor the salts which it forms with potass, soda or lime, have much medicinal action on the human system.

Morphia, called by the French *morphine*, was also discovered by Sertuerner, though perhaps previously seen by Derosne and Seguin. It is a crystalline, transparent substance, sparingly soluble in water, but readily soluble in alcohol, ether and oils, to which it communicates a bitter taste. It has all the characters of an alkali, affecting test papers, forming neutral salts with acids, and decomposing metallic salts. It fuses at a moderate temperature, and crystallizes in cooling.

Morphia exists in opium in combination with the meconic acid, forming a meconate of morphia. Various processes have been recommended for obtaining it by Sertuerner, Robiquet, Choulant and Thomson. According to Mr. Brande, it may be procured from powdered opium by triturating it into a paste with dilute acetic acid, pouring caustic ammonia into the filtered solution, and evaporating. During the evaporation, a brownish sub-

stance separates, which, by digestion in a small quantity of cold alcohol, becomes nearly colourless, and is pure morphia.

Authors are not agreed as to the precise degree of medicinal activity in morphia. Opium, when deprived of it, is rendered inactive, according to some experimenters, but not so according to others. From the general experiments which have been made, we are authorized to infer, that it is a powerful narcotic, but much more powerful when in combination with an acid, or dissolved in oil or alcohol, than when taken alone in a solid state. The dose of this substance, when pure, is at present very undecided, some authors giving fractions of a grain, and others giving twelve grains with impunity. Whether its variable activity is caused wholly by the solvent it meets with in the stomach, or whether it is owing to the different modes of preparation, is a question which future trials may settle. At present we may venture to predict, that it probably will not supersede crude opium in medical practice, even though some of its more elaborate combinations may exceed that drug in power.

The third principle peculiar to opium is an azotized substance, crystallizing in beautiful pearly prisms or tables, soluble in fixed oils and still more so in ether and the acids, insoluble in water and sparingly soluble in alcohol, incapable of changing vegetable colours and of neutralizing acids. It is called *narcotine*. This substance was discovered by Derosne before the discovery of morphia. It has since been supposed to be a salt of morphia, but is now acknowledged as a distinct principle of opium. Its effects are nauseating and stupifying, and eight or twelve grains in solution have proved fatal to dogs. Morphia, deprived of narcotine, is imagined to be less intoxicating and more simply soporific. Under this impression, M. Robiquet has furnished a process for obtaining an extract of opium without narcotine. It consists in washing and macerating the watery extract with portions of sulphuric ether, as long as the ether deposits crystals of narcotine on evaporation. Experiments are still wanting to decide how far improvements are practicable in the pharmaceutical treatment of opium.

MEDICINAL EFFECTS. Opium, administered in a moderate dose to a man in health, produces, within a short time, generally from

five to twenty minutes, a marked effect on the brain and nervous system. There ensues from it usually an increase of what are termed the animal spirits; or a tranquil confidence and serenity of mind. This is afterwards followed by tendency to sleep. The sensibility of the system is diminished, and the body becomes less susceptible of annoyance, pain or disturbance from external causes. Irritability is also lessened in the various organs and textures, so that their functions are manifestly retarded. The secretions and excretions are carried on more sparingly, excepting perhaps the excretion from the pores of the skin, which opium rather promotes than diminishes. All the chylopoietic viscera are slower in the performance of their functions, appetite is rendered less keen and digestion slower, the peristaltic motion is lessened, and costiveness ensues. The urine is diminished, and the mucus of the throat and fauces rendered thick and more sparing. The effect of opium on the circulating system has been the subject of much dispute, and the reports of different observers do not agree as to its primary operation. But whether its first effect be to quicken the pulse or otherwise, it is agreed, that after a certain time the pulse becomes invariably slower than before.

The immediate effects of opium ordinarily pass off in from twelve to twenty-four hours, leaving, if the dose has been considerable, a sense of dullness, heat and thirst, a costive state of body, and frequently head-ache, hoarseness, and an itching of the skin. But if large quantities have been taken, a train of alarming symptoms supervene, somewhat like those which follow poisoning from other narcotics. These are vertigo, confusion of mind and difficulty of attention, gradual loss of eyesight, paleness, great muscular relaxation, difficulty of speech and of deglutition, great somnolency, and more rarely delirium and convulsions. These afterwards pass into a profound apoplectic stupor, accompanied usually with stertorous breathing, and a full, hard, slow pulse; which state continues till death. If, however, the dose has not been excessive, or the patient is aided by prompt evacuations and other means, recovery in most cases takes place rapidly, and no permanent injury remains to the constitution.

EXCEPTIONS. All persons are not equally susceptible of the influence of opium, nor the same persons in all situations. The robust bear more than the weak and delicate, and the experienced more than the unaccustomed. Habitual use renders the system unsusceptible of the original effect of opium, so that people under painful chronic diseases, who have long taken opium as a palliative, find it necessary, in many instances, to increase by degrees to ten or twenty times the quantity, which at first afforded them relief, before the same benefit can be certainly obtained. Persons intemperate in opium consume enormous quantities of the drug with impunity, at least as to its present effects. The opium eaters of Asia drag out a miserable existence under the daily employment of doses, a small part of which would originally have proved fatal to them.

Bodily *pain* powerfully counteracts the narcotic operation of opium. A patient suffering violent cramp or colic may go on repeating large doses, until he has taken an amount which, under other circumstances, would have been dangerous; and in the end, after ease is obtained, experience no more soporific effect than he would have derived, when at ease, from a tenth part of the amount. Prodigious quantities are sometimes lavished in cases of hydrophobia and tetanus, with very little effect on the sensibility or irritability of the patient.

USE IN COMMON DOSES. Opium, exhibited in such quantities as would not cause inconvenience to an ordinary person in health, has been applied to the treatment of numerous diseases and symptoms. Generally, it is resorted to, under proper circumstances, for the relief of spasm and pain, of watchfulness and nervous irritability, and of inordinate evacuations. In fevers of the simple, continued kind, it is only useful in the advanced stages, under symptoms of prostration, such as low delirium, subsultus tendinum, watchfulness and diarrhœa; all which it is eminently calculated to relieve, forming an important adjunct to wine and other parts of a cordial regimen. In intermittent fevers it is also useful given an hour before the expected paroxysm. In fevers attended with local inflammation, opium is commonly not

beneficial, but on the contrary injurious, if administered before the violence of the disease is reduced by other remedies. After this has been done, it proves serviceable as a palliative in pneumonia, rheumatism and some other inflammatory diseases. When intended as a sudorific in these cases, its combinations with emetic substances are peculiarly useful, as in the *Powder of ipecacuanha and opium*. Dysentery, after the bowels have been freely and thoroughly evacuated, is remarkably benefited by combinations of this sort.

In hemorrhages, where much arterial excitement does not exist, or has been reduced by depletion; opiates, either alone or in combination with nauseating and astringent medicines, are particularly beneficial. Those of the lungs and uterus are in a special manner appropriate subjects for this treatment. Opium is our principal remedy in the disease of cholera, in which it probably acts by lessening the secretion of bile, and diminishing the irritability of the stomach and bowels. It is true, that where we suppose the disease to depend on the presence of acrid ingesta, these must be removed by proper evacuates, before opium is administered. But, in violent cases of cholera, it generally happens, that the excessive flow of bile completely evacuates the alimentary canal before the patient is seen by the physician, so that no time need be lost before commencing the exhibition of opium. In violent cases, large doses are sometimes necessary. The tendency of this drug to retard the alvine discharges, renders it a proper medicine in diarrhœa, provided no irritating substances requiring evacuation remain in the bowels. For the same reason it is found, even in minute doses, an important adjunct to mercurials, antimonials, bark, &c. when these medicines pass off too rapidly from the bowels. Emetics are retarded or frustrated by opium, and the occurrence of excessive vomiting is more frequently relieved or prevented by this, than by any other medicine.

As a palliative, opium is much resorted to for temporary relief in the pains of chronic syphilis, of schirrus, cancer and other distressing and obstinate maladies. The paroxysms of strangury

and nephritis are particularly relieved by it, especially when it is thrown into the rectum. The after-pains, which follow parturition, if excessive in violence, require opium for their suspension.

USE IN LARGE DOSES. The cases above described are generally within the reach of such doses of opium as would not be followed by serious inconvenience, if taken by a person in health. But there are cases of disease, particularly of a spasmodic kind, which are not under the influence of such doses. In these, much larger quantities may be taken, such as it would be imprudent to give to a healthy man; and these doses may be repeated at frequent intervals, until the spasm and pain are conquered, without the eventual production of any injury to the patient. The disease in these cases counteracts the narcotic effect of opium, until relief is obtained; after which the patient becomes susceptible, as before, of the influence of the medicine. The spasmodic affections of the alimentary canal, known in the form of colic and cramp of the stomach, when they occur in their more violent shapes, are proper subjects for this treatment. In these cases, it is often necessary to begin with a hundred drops, or even more, of laudanum, and to repeat this quantity at intervals of twenty or thirty minutes, until five or six hundred drops have been given, if the pain does not sooner begin to be relieved. The safety of this practice is established by abundant experience in this city and state. I have repeatedly observed that patients with the above complaints, after taking six hundred drops in this manner, do not sleep longer than if, at another time, they had taken fifty. It is not uncommon for them to wake spontaneously in two hours from the time of falling asleep. After relief is thus obtained, no time should be lost in emptying the bowels with cathartics; and for this purpose a strong infusion of senna, aided by injections, is peculiarly proper. It is not to be understood, that the foregoing treatment is requisite in all cases of gastrodynia and colic. Where the pain is moderate, and can be supported without hazard until cathartics can be made to operate, these are the appropriate remedies. But in cases of violence and danger, the pain and spasm should at all events be conquered by the prompt and liberal use of opium; after which, notwithstanding the con-

stipating effect of this drug, cathartics will operate more easily than they would have done at the commencement of the disease. Bloodletting, in cases of violent pain, prepares the system for the more favorable reception of opium.

The painful spasms of hydrophobia and tetanus seem to prevent, and almost set at defiance, the narcotic influence of opium. Nothing short of the most powerful doses can produce the least impression on these terrific diseases. We are told of cases of tetanus, in which opium has been given at the rate of more than a hundred grains in a day, without injury to the patient.* It would be useless to cite the instances of such incredible doses, did it not serve to shew, that in proportion to the violence of spasm may be the magnitude of the dose of opium; and that so long as spasm remains unsubdued, no injurious consequence is usually to be feared from the medicine. Much discretion, however, is necessary, on the part of the practitioner, in estimating the violence and probable tendency of a spasmodic disease, before he ventures upon such doses as would of themselves be hazardous under different circumstances.

There are cases of watchfulness, which are not under the control of opium, except it be given to a large amount. This is exemplified in the delirium tremens of drunkards, a disease in which opium is highly beneficial, but only so when very freely administered, and repeated every hour or two, until sleep is procured.

CONTRAINDICATIONS. Although opium is the most effectual palliative we possess in many cases of spasm and of chronic disease, it is not so in febrile diseases accompanying violent, acute, and deep-seated inflammation. When the brain, lungs, liver, or other important viscera are subjects of this inflammation, opium is strongly contraindicated, and, if given, affords no relief; but, on the contrary, rarely fails to aggravate both the pain and the

* Dr. Fisher, now president of the Massachusetts Medical Society, gave about eleven drachms of opium in three days to a patient with tetanic spasm. The result was successful. See his paper in the Massachusetts Medical Communications, Vol. I.

violence of the disease. A qualifying opinion has with some justice been advanced, that inflammations of the bowels admit of opiates more easily than those of other parts. In these cases, after copious bloodletting, it appears to be immediately useful in quieting inordinate peristaltic motion, and thus affording aid to the other means of cure. As a general rule, inflammations of passages bear opium better than those of circumscribed cavities; or those of mucous membranes better than those of serous or cellular textures. Inflammations of the latter kind become susceptible of benefit from it only in their secondary stages, after depletion has been carried to an extent which renders it no longer admissible.—In the early stages of simple fever, opium almost always does harm. It can rarely be given with prudence in any case of strong arterial excitement, and is equally improper when there exists a particular determination to the head.—Mania, in most of its forms, derives no benefit from opium.

EXHIBITION. A grain of solid opium is an ordinary *dose*, to be varied according to circumstances. If opium in powder be made into pills with resinous substances, it will be more gradual in its operation; if with mucilage or syrup, it will be more speedy. When a very prompt effect is required, laudanum is preferable to undissolved opium. An aqueous solution is said to be followed by less inconvenience than a tincture, but it is more difficult to regulate its strength. If the stomach readily rejects opium, it may be thrown into the rectum as an enema. In this case, double the quantity should be employed. Opiate injections are also indicated when the rectum itself, or parts in its neighborhood, are the seat of the complaint, as in dysentery and strangury. Externally applied to the cuticle, opium has very little effect. For further remarks, see *Acetum opii*, *Tinctura opii*, *Tinct. camphoræ opiata*, *Pulvis ipecac. et opii*.

ANTIDOTES. To persons poisoned by large quantities of opium, a powerful emetic of sulphate of zinc or sulphate of copper should immediately be given, the amount being proportioned to the emergency of the case, and repeated at short intervals till vomiting is produced. Vegetable acids should be administered, such as vinegar and lemon juice, subject, however, to this cau-

tion, that if opium still remains in the stomach, their use should be delayed until this is discharged, as they would otherwise accelerate its solution and activity. Strong coffee and tea may be freely administered; also cordial stimulants, which are not of the narcotic kind, as ammonia, musk and the aromatics. The patient should be kept erect and moved frequently, and the skin excited with friction, rubefacients or blisters. Bloodletting is proper if the comatose tendency be strong. If the patient appears to be in a dying state, an attempt may be made to keep up the pulse by artificial respiration, as recommended by Mr. Brodie, until the narcotic influence upon the brain has past.

ORIGANUM.

Wild Marjoram.

This plant is a hot, pungent aromatic, growing wild on dry soils in England and other parts of Europe. The powder has been sometimes taken as a stomachic and emmenagogue, but the article is made officinal chiefly on account of its volatile oil.

PETROSELINUM.

Parsley.

Common garden parsley is said to be diuretic; but its properties are, at best, of a secondary kind.

PHOSPHORUS.

Phosphorus.

ORIGIN. Phosphoric acid, of which this substance is the base, exists in various combinations in the mineral, vegetable and ani-

mal kingdoms. It is commonly obtained, on account of the cheapness of the material, from the calcined bones of animals, which consist chiefly of phosphate of lime. By a peculiar process, the lime is separated by means of sulphuric acid, leaving phosphoric acid, from which the oxygen is afterwards abstracted by hot charcoal.

QUALITIES. Phosphorus is of a pale-reddish colour, and semi-transparent, but, when perfectly pure, it is nearly colourless. It is waxy and flexible, but brittle at low temperatures. It melts at 105° , and boils at 550° , air being excluded. Exposed to the air, it emits luminous fumes of an offensive odour, takes fire at about 148° , and burns with an intense, brilliant flame, throwing out copious white vapours of phosphoric acid. It is usually kept, for security, under water.

USES. According to the report of various French and German physicians, this substance, in small doses, acts as a powerful and diffusible stimulant, increasing the frequency of the pulse and heat of the body, augmenting muscular power, and particularly stimulating the urinary and generative organs. In larger doses it is a corrosive poison, inflaming the alimentary canal, and occasioning death, apparently, by the production of phosphoric acid. It has been given as a medicine in the low stages of fever, and some other diseases attended by debility or spasm, with alleged benefit. It also promises some advantage in dropsy; but its use is difficult, and requires great caution.

EXHIBITION. As the activity of phosphorus is influenced by the facility with which it obtains oxygen from the contents of the alimentary canal, it is not easy to fix upon the greatest safe dose. A grain is the quantity indicated by Hufeland and Lobstein; and though larger doses have been given with impunity, yet smaller ones have sometimes done harm. Even a quarter of a grain has not always been harmless. Solutions of phosphorus in oil and in ether are more active than the medicine in substance. Poisoning from phosphorus is to be treated with emetics, solutions of magnesia, lime or alkalies, and a subsequent antiphlogistic regimen.

PHYTOLACCA.*Poke.*

ORIGIN. The *Phytolacca decandra* is a native of all parts of the United States, as well as of the south of Europe and north of Africa. It is sometimes known in this country by the names of cocum, garget, and pigeon berries. The root is dug for medical use late in autumn, after the stalks are dead.

QUALITIES. This plant has a large root, frequently exceeding a man's leg in thickness. When dried, this root is light and spongy, with a mild and somewhat sweetish taste. Both water and alcohol extract from it a soluble portion, which seems to be a variety of extractive matter.

USES. Phytolacca is a certain emetic and cathartic, attended sometimes in its operation with narcotic symptoms. It differs from the other emetics in common use by both the slowness and length of its operation. An operative dose is frequently an hour, and sometimes two, before it begins to produce vomiting; but after this operation has commenced, it not unfrequently goes on with great obstinacy for many hours. Patients are not all similarly affected by it. On some it operates promptly and with mildness; in others it occasions distressing nausea, vertigo and temporary insensibility of the retina. Large doses are apt to occasion hypercatharsis. Phytolacca is administered with advantage in rheumatism, in such doses as do not produce a great effect on the stomach. It quickens the action of other cathartic medicines, when combined with them in small quantities. Externally, in the form of decoction or ointment, it produces a sense of burning on the skin, and is found efficacious in psora and some other cutaneous affections.

EXHIBITION. Ten grains ordinarily produce vomiting, in from one to two hours, and care should be taken not to accumulate the medicine in the stomach by too early repetition. Three or four grains, combined with aloes or jalap, form an active

and easy purge. The powder is generally more certain and less troublesome than any liquid preparations.

PHYTOLACCÆ BACCÆ. *Poke Berries*.—The green berries of *Phytolacca decandra* possess, in a considerable degree, the qualities of the root. The ripe berries are less active, and, according to Decandolle, are used in some parts of France to feed poultry. They however partake of the character of the plant, and a tincture prepared from them has acquired considerable reputation in rheumatism.

PILULÆ.

Pills.

Pills are composed of medicines in substance formed into round masses of such size, that they can conveniently be swallowed whole. The pill is a suitable form of exhibition for those medicines which act in small doses, which are insoluble in common menstrua, or which, by particular combinations, can be rendered more quickly, or more slowly soluble, at pleasure. Thus opium, calomel, aloes and gamboge are advantageously used in the form of pills. On the other hand, this form is improper for those articles, which operate only in large bulk, as senna; those which deliquesce, as subcarbonate of potass; or those which are of too fluid a consistence, as balsams, &c.

Some substances can be made into pills without any addition; but generally the constituents of pills are in the state of dry powders, and require the presence of some tenacious or fluid medium to unite them. The nature of this medium must vary according to the solubility and adhesiveness of the medicinal substance. Thus aloes, being soluble and adhesive, requires only to be a little moistened with water; submuriate of mercury, which is neither soluble nor adhesive, requires a very viscid and tenacious liquid; while tartarized antimony, which is soluble but not adhesive, requires a kind of soft solid to hold it together. Syrups,

mucilages and Castile soap are commonly employed as the uniting medium for pills. To regulate the consistency of pills, and to keep them separate, some dry powder is usually employed, such as magnesia, arrow root, or powder of liquorice root. Magnesia, however, and likewise soap, occasion some decomposition in certain metallic salts, and have therefore been rejected by those who are very nice in their prescriptions, when such salts are used.

PILULÆ ALOETICÆ. *Aloetic Pills.*—The compound of soap and aloes is more soluble than aloes alone, and its purgative powers are more mild. Hence the aloetic pill offers a useful mode of exhibiting the drug, when it is desired to avoid irritation of the rectum. The *dose* is about a scruple.

PILULÆ ALOES ET COLOCYNTHIDIS. *Pills of Aloes and Colocynth.*—Under the name of *Pilulæ cocciæ*, or *cochiæ*, this compound has been in use ever since the time of Rhazes. It is an active and useful purgative in the *dose* of ten grains, to which a portion of calomel is frequently added.

PILULÆ ALOES ET MYRRHÆ. *Pills of Aloes and Myrrh.*—This is, also, a combination of Rhazes, and is ordinarily known under the name of *Pilulæ Rufi*. It is a popular remedy in nervous head-ache, amenorrhea, &c. *Dose*, about a scruple.

PILULÆ ALOES CUM MYRRHA ET GUAIACO. *Pills of Aloes, Myrrh and Guaiacum.*—This is a stimulating purgative, in *doses* of from one to two scruples. It must be observed, that the oxide of antimony here used is the article described on page 73 of this work.

PILULÆ ANTIMONIALES COMPOSITÆ. *Compound Antimonial Pills.*—Each of these pills contains two grains of subnuriate of mercury, one of opium, and one third of a grain of tartarized antimony. This combination is powerfully alterative and diaphoretic in rheumatism, catarrh, and various other inflammatory

affections. One pill may be taken at night ; or half a pill may be repeated two or three times during the day.

PILULÆ ARSENICI. *Pills of Arsenic*.—One of these pills contains a sixteenth part of a grain of arsenious acid, modified by the soap. Arsenic, however, ought not to be given in substance, on account of the difficulty of equalizing its subdivision, or its action on the stomach.

PILULÆ ASSAFÆTIDÆ. *Assafetida Pills*.—The soap promotes the solubility of assafetida in the stomach. *Dose*, from ten to twenty grains.

PILULÆ ASSAFÆTIDÆ COMPOSITÆ. *Compound Assafetida Pills*.—These pills are cathartic and anodyne in a *dose* of twenty or thirty grains.

PILULÆ AURI MURIATIS. *Pills of Muriate of Gold*.—One of these pills contains a fifteenth part of a grain of muriate of gold, and is given for a *dose*. The chance of equal subdivision will be greater, if only a tenth part of the whole quantity is made up at a time.

PILULÆ COLOCYNTHIDIS EXTRACTI COMPOSITI. *Pills of Compound Extract of Colocynth*.—This active combination, commonly known by the name of *Fothergill's pills*, is given as a cathartic in the *dose* of two or three pills. For the oxide of antimony, which enters into this compound, see page 73 of this work, or the list of *Corrigenda*.

PILULÆ FERRI SULPHATIS. *Pills of Sulphate of Iron*.—Tonic and astringent. *Dose*, one pill, containing two grains of the sulphate.

PILULÆ FERRI SULPHATIS COMPOSITÆ. *Compound Pills of Sulphate of Iron*.—These pills are laxative, tonic and astringent.

The sulphate of iron is, no doubt, partly converted into an oxide by the soda of the soap. *Dose*, from one to three pills.

PILULÆ GAMBOGIÆ ET SCAMMONII. *Pills of Gamboge and Scammony*.—A compound somewhat resembling these has become a popular medicine in the United States. From two to four pills produce an effectual operation.

PILULÆ HYDRARGYRI. *Mercurial Pills. Blue Pills*.—The common *blue pill* is made of crude mercury *extinguished*, or reduced to the state of protoxide by long trituration with some viscid substance, a dry powder being afterwards added to give it consistence. Various saccharine, mucilaginous and oily substances have been used to extinguish the mercury, but the conserve of roses is now generally adopted by the pharmacopœias, and answers the purpose very well. Care must be taken to see that it is not adulterated with sulphuric acid, which is sometimes done to heighten its colour. When the mercury is so far reduced, that no globules appear on rubbing small portions of it on paper, the liquorice is added, and the whole made immediately into pills, before it becomes hard. The Edinburgh College employs starch, instead of liquorice; but pills made by their formula are apt to crumble. One grain of mercury is contained in four of the Edinburgh blue pill, in three of the London, and in two and a half of the American. These pills are much employed to produce a mercurial influence on the system, and sometimes to act as laxatives. For both these purposes they are much less effectual than calomel, and are chiefly deserving of use in mild cases, or in irritable subjects, who are purged or otherwise incommoded by the submuriate. When made according to the American formula, each pill contains a grain of mercury, and half a dozen, or more, may be taken in a day.

PILULÆ HYDRARGYRI OXYMURIATIS. *Pills of Oxymuriate of Mercury*.—The muriate of ammonia facilitates the solution of the corrosive sublimate in the stomach. The form of pill, however, is objectionable for so powerful a substance, since it is diffi-

cult to make the subdivision exact, and the pill is liable to occasion distress by concentrating its action upon a limited portion of the stomach. A commencing *dose* of these pills may be half a grain.

PILULÆ HYDRARGYRI SUBMURIATIS. *Pills of Submuriate of Mercury.*—Each of these pills contains a grain of submuriate. It is probable that the calomel is partially, though not wholly, changed into protoxide of mercury by the alkali of the soap, so that the pill will be rendered milder than pure calomel, while it is more active than the blue pill. *Dose*, one or two pills, as an alterative or sialagogue. The full activity of calomel will be insured, if it is made into pills with syrup, and rolled in flour or arrow root.

PILULÆ JALAPÆ COMPOSITÆ. *Compound Pills of Jalap.*—This compound is an active cathartic, but would probably be more so without the soap. *Dose*, from two to four pills.

PILULÆ MYRRHÆ ET FERRI. *Pills of Myrrh and Iron.*—*Dose*, two or three pills. For the properties, see *Iron*, and *Myrrh*.

PILULÆ OPII. *Pills of Opium.*—These pills are more quickly soluble in the stomach than when made of moist opium. *Dose*, a grain.

PILULÆ PICIS. *Tar Pills.*—These may be taken in dropsy, rheumatism and cutaneous diseases, to the extent of a hundred or more in a day.

PILULÆ RHEI COMPOSITÆ. *Compound Pills of Rhubarb.*—This mass is a warm laxative, in the *dose* of a scruple. It is said to become less active by keeping.

PILULÆ SCILLÆ. *Pills of Squill.*—The squill is most effectual when given in substance, and most convenient in pills. *Dose*, one pill, as an expectorant or diuretic.

PILULÆ SODÆ SUBCARBONATIS. *Pills of Subcarbonate of Soda.*—*Dose*, as an antacid, about a scruple.

PIMENTA.

Pimento.

Pimento, or allspice, is the dried berry of a species of myrtle growing in the West Indies and South America. It contains resin, extractive, tannin and gallic acid; also a volatile oil, on which its most active properties depend. Pimento is a warm, aromatic stimulant and tonic, and is sometimes administered with a view to these effects. It is also employed to qualify the taste of disagreeable medicines; but its principal use is as a culinary spice or condiment.

PIPER.

Black Pepper.

Common black pepper is the produce of a climbing plant, cultivated in Sumatra, Java and some other parts of the East Indies. The plants begin to bear when three years old, and continue bearing for eight years. The fruit is a small, drupe, or one-seeded berry, which, when dried, forms the pepper of commerce.

QUALITIES. Black pepper has a strong, not unpleasant odour, and a well-known, pungent, biting taste. Its virtues are extracted by alcohol and ether, and partly by water. It contains, according to Pelletier, the following ingredients: 1.—*Piperin*. 2.—A very acrid, concrete oil. 3.—A volatile, balsamic oil. 4.—A gummy coloured matter. 5.—An extractive principle. 6.—Malic and tartaric acids. 7.—Starch. 8.—Bassorine. 9.—Lignin. 10.—Earthy and alkaline salts. *Piperin* is a peculiar,

crystalline, colourless substance, with scarcely any taste, very soluble in alcohol, less so in ether, and insoluble in cold water. It melts at 212° . Strong sulphuric acid gives it a blood-red colour. The pungent taste of pepper resides in the concrete oil.

USES. Great quantities are consumed in all parts of the civilized world as a condiment with food. In small quantities it aids digestion, but its abuse brings on a predisposition to inflammatory disease. Infused in spirit, or sprinkled on a poultice, it forms a useful rubefacient.

NOTE. White pepper is the above article deprived of its outer coat. Long pepper is from a different species of the same genus, the *Piper longum*.

PIX ABIETIS.

Burgundy Pitch.

This article is procured from incisions made in the Norway spruce fir, a native of the north of Europe and Asia. It is a concrete turpentine, or resin containing some of its volatile oil. Burgundy pitch is much used as a plaster for keeping up a gentle excitement of the skin. It adheres for a long time, particularly in persons of a dry cuticle, keeping up a sense of itching, and in some persons producing rubefaction, and even blistering.

PIX LIQUIDA.

Tar.

Tar is an impure turpentine, obtained from different species of *pine* by burning. The resinous parts of the wood are collected in pits, and being set on fire at top, a part of the turpentine is consumed, while the rest is melted and flows out at the bottom.

From this process, it acquires an empyreumatic odour, and contains charcoal and an acid, besides resin and volatile oil. Tar is stimulant and diuretic in *doses* of one or two scruples. Its continued use occasions strangury. Externally it is useful in porri-go and herpes. The vapour of tar has been recommended to be inhaled by phthisical patients.

PLUMBUM.

Lead.

ORIGIN. This metal is found in a great variety of minerals combined with sulphur, oxygen and various acids. It is usually procured from the common sulphuret, or Galena, by exposing that mineral to a strong heat, till the sulphur is driven off, and the lead reduced to fusion.

QUALITIES. Lead has a light, blueish colour, with a bright lustre, which quickly becomes tarnished on exposure to the air. It is soft, very malleable, melts at 600°, and by heat and air is readily converted into an oxide. Its specific gravity is 11.4. Exposed to oxygen upon ignited coals, it burns with a blue flame, throwing off dense yellow fumes of oxide.

MEDICINAL EFFECTS. Metallic lead exerts no influence on the human system as such; but, by combining with oxygen and acids in the alimentary canal, it may become active. Reduced to a soluble state, it has long been accounted a poison; causing, under certain circumstances, a specific disease, called *colica pictorum*, or painters' colic; characterized by great pain and violent retraction of the abdomen, vomiting, obstinate constipation, and sometimes convulsive and paralytic symptoms. This disease does not always appear to arise from lead alone, nor do all persons contract it, who are exposed to the contact and ingestion of the metal. Yet the number of cases which have been published, and the almost universal opinion which prevails on the subject, leave little doubt, that habitual exposure to lead, in some of its forms, is the most common source from which this disease is

derived. In districts where the colica pictonum has been endemic, some exposure to lead has been commonly fixed on as the particular cause, and great terror has been excited, from considering the variety of ways in which the metal may be unwarily received into the system, particularly by the use of culinary vessels glazed with lead, and of wines and acid liquors adulterated with it. Of late, however, less anxiety appears to have prevailed on this head, either from the disease being now less frequent than formerly, or from the observations of medical men in regard to the metal having become more numerous and precise. It would be curious to ascertain what particular forms and uses of lead are most productive of the painters' colic; since we not only find many artizans exposed for a long period without incurring the disease, but the extensive application of the metal by physicians and surgeons, in the form of lotions, ointments and plasters, to denuded surfaces and secreting membranes; the exhibition of sugar of lead in considerable quantities internally; the retaining in the body of wires or probes of lead after certain surgical operations, and of unextracted bullets after gun-shot wounds; seem to render it probable that something peculiar, either in the nature of the exposure, or the constitution of the patient, is necessary to generate this disease. At present, it seems probable, that long-continued exposure to small quantities more frequently induces this particular malady than short exposure to larger quantities. White lead is the preparation, from the external contact of which painters most frequently appear to get the disease; yet Orfila found that half an ounce of this substance swallowed by a dog did not prove fatal, but was recovered from in a day, having produced only vomiting.

PLUMBI OXIDUM SEMIVITREUM.

Semivitrified Oxide of Lead. Called Litharge.

Litharge is a yellow protoxide of lead, with a little carbonic acid, generally obtained during the process of separating silver

from that metal, by the effect of a blast of air and a red heat. It is in small, vitreous scales, which are inodorous, insipid and varying from whitish to reddish-yellow. Litharge is soluble in acids, and combines with fixed oils, forming *plasters*, for which purpose it is extensively used in pharmacy.

PLUMBI SUBCARBONAS.

Subcarbonate of Lead. Called White Lead.

Common white lead, or ceruse, is prepared, in the large way, by exposing sheets of lead, rolled up, to the fumes of vinegar, for several months, in pots kept warm by burying them in fresh stable litter, the fermentation of which supplies both heat and the requisite quantity of carbonic acid. By this process the surface of the lead becomes oxidized, and converted into a subcarbonate. This is separated, from time to time, by scraping the plates.

QUALITIES. It is inodorous, nearly insipid, insoluble in water, but soluble by pure potass. It contains, according to Berzelius, oxide of lead 83.5, and carbonic acid 16.5. It is frequently adulterated with chalk, which may be detected by dissolving some of it in distilled vinegar, and adding oxalic acid to the solution. If chalk be present, a precipitate will be formed.

USES. It is astringent and desiccative, and is applied to superficial inflammations and excoriations, by sprinkling it in a dry state, or by forming with it an ointment.

PLUMBI ACETAS.

Acetate of Lead. Called Sugar of Lead.

PREPARATION. See Pharmacopœia, p. 186. The sugar of lead of commerce is often prepared at the same time with the subcarbonate, by immersing the ends of the sheets, alternately, half way

in vinegar. A subcarbonate is formed on the upper half, which is changed into an acetate when they are inverted. This is afterwards crystallized by evaporation.

QUALITIES. Acetate of lead is usually crystallized in needles of a silky appearance, which are flat, four-sided prisms, with dihedral summits. Its specific gravity is 2.345. It is soluble in three and a half times its weight of cold water, and in somewhat less of boiling water. It is also soluble in alcohol. The taste is sweet and astringent. According to Thenard, 100 parts consist of 58 oxide of lead, 26 acid, and 16 water. It appears to be a neutral salt, not a *super-acetate*; and Dr. Paris observes, that its property of reddening vegetable blues is attributable to a partial decomposition, which takes place when the least portion of carbonic acid is present in the water used to dissolve it.

USES. The most extensive employment of sugar of lead is as an external application in topical inflammations. Lotions, injections and ointments, composed with it, are applied with great benefit to cases of ophthalmia, gonorrhœa, hemorrhoids, cutaneous eruptions, excoriations, and phlegmonous swellings. Their action is astringent, cooling, sedative and discutient.

Internally exhibited, sugar of lead is one of the most valuable and powerful astringents we possess. In France it has acquired reputation as a remedy in the night sweats of hectic fever. In some forms of chronic diarrhœa, and in dysentery after proper evacuations, it has been used with decided advantage. But its greatest efficacy has been manifested in cases of hemorrhage from the lungs, the bowels and the uterus. When the arterial excitement, which often attends hemoptysis, has been subdued by depletion with the lancet; this medicine, alone, or in combination with opium and ipecacuanha, proves eminently useful in arresting the flow of blood. In uterine and alvine hemorrhages, it is no less powerfully efficacious, and has received the most decided encomiums from medical writers of high celebrity. As it appears, from the smallness of the dose frequently indicated in medical books, that much timidity still exists in regard to the *safety* of this practice, the following circumstances may serve to illustrate that point :

Orfila injected from one to three grains of acetate of lead into the jugular veins of several dogs, without their being incommoded by it. Five grains, however, proved fatal. A drachm and a half, swallowed by a small dog, occasioned vomiting, but no subsequent inconvenience. Three drachms and a half were fatal. Dr. Fouquier, in the *Hôpital de la Charité*, at Paris, gave from one to fifteen grains in a day, to many consumptive patients, for night sweats and diarrhœa; and in no instance, excepting a single case, did inconvenience arise from it. Dr. Chapman informs us, that he has given half a drachm in twenty-four hours, without any unpleasant consequence, and had known two drachms to be taken at once by mistake, with no other effect than purging. But it must be remembered, that large doses, if not speedily discharged, may inflame the stomach, and induce other dangerous symptoms. Fortunately, the cases to which the lead is most adapted are those of short duration, and it is rarely necessary to give the medicine in large quantities, or to continue its use for a great length of time.

EXHIBITION. From two to six grains may be given in hemorrhage, and repeated in from three to six hours, according to the urgency of the case. A grain of ipecacuanha and half a grain of opium may be combined with each dose. Alkalies and alkaline earths, and their carbonates, strong acids, alum, sulphates, muriates, soaps, sulphurets, and tartarized antimony, decompose the acetate of lead, and should not be administered with it. Solutions for external use should be made with soft water, to prevent decomposition. From one to two grains may be dissolved in an ounce of water for a collyrium in ophthalmia and an injection in gonorrhœa. Over the cuticle, solutions of almost any strength may be employed. In the case of sore nipples, a moderately strong solution should be kept regularly applied, but carefully washed off before nursing the child.

ANTIDOTES. If a dangerous quantity of acetate of lead has been swallowed, the patient should immediately take freely a solution of sulphate of magnesia, sulphate of soda, or sulphate of potass. At the same time vomiting should be produced as speedily as possible.

PLUMBI SUBACETAS LIQUIDUS.

Liquid Subacetate of Lead. Goulard's Extract.

This solution of litharge in vinegar is transparent, yellowish, sweet and astringent. In practice it is a well-known astringent and discutient, externally applied. It is useful as a remedy in slight burns and other superficial inflammations. Surgical writers of eminence recommend it in swelled testicle and in prolapsus iridis. It forms, when diluted, a useful gargle in cynanche, care being taken not to swallow it. Its mode of operation is the same with that of solutions of sugar of lead.

PODOPHYLLUM.

May Apple.

ORIGIN. The *Podophyllum peltatum* is an American plant, growing in low, shady situations, from New England to Georgia. The plant has only two leaves, with a flower in the fork, followed by a yellow, acid fruit.

QUALITIES. The root is creeping and jointed, and, when dry, it is brittle and easily reduced to powder. Its taste is unpleasant, and, when chewed for some time, becomes intensely bitter. Water and alcohol extract its bitterness. It contains resin, fæcula, bitter extractive, and a portion of gummy substance.

USES. Podophyllum is one of the most certain and efficacious of the cathartic vegetables, which have been examined in this country. It very nearly resembles jalap in its operation, but is somewhat slower, and continues its effect for a longer time. In irritable stomachs, it sometimes occasions nausea, but not more than other medicines of its class. In small doses it proves a gradual and easy laxative; in large ones a powerful and long-

continued purge. It has been particularly recommended in dropsy, to which disease it seems well adapted by the large evacuations it occasions.

EXHIBITION. It is best given in powder. Ten grains, taken at night, produce a free operation in the following morning, and twenty grains purge with activity. If calomel be combined with it, it operates sooner and with less griping.

POLYGALA RUBELLA.

Bitter Polygala.

This is a small, native plant, having a strong and permanent bitter taste, communicable to both water and alcohol. An infusion of this vegetable has been considerably used in the northern states, and is found in small *doses* to be a useful stimulant and tonic to the digestive organs; and in large ones to excite diaphoresis, and moderately to open the bowels.

POLYPODIUM.

Polypody.

Polypody, or fern-root, is an inert substance, formerly supposed to possess specific powers in *tænia*, the secret of its use having been purchased of Madame Nouffer by the French government for a large price. It is obvious, however, that Madame Nouffer's cures depended upon the enormous cathartics, which she employed in conjunction with the root. This plant is the *Aspidium filix mas* of Smith.

POTASSA.

Potass.

The potass obtained by the process of the Pharmacopœia is sufficiently pure for medical purposes, but contains a small portion of lime and acids, not, however, sufficient to affect its causticity.

QUALITIES. Caustic potass is a white, brittle substance, with a smell like slaking lime, and a corrosive action on the mouth. It cannot be tasted or handled many moments with impunity. It dissolves in less than its weight of water, and crumbles soon, when exposed, by absorbing moisture from the atmosphere. It melts at 360° , and is volatilized by a red heat. Pure potass is an oxide of potassium, containing, according to Sir H. Davy, 86 parts of potassium, to 14 of oxygen.

USES. This substance is a powerful escharotic, acting with great rapidity. It is principally used to form large issues, in cases of hip disease and other deep-seated inflammations. An *issue* of this kind is most conveniently formed by placing on the skin a piece of linen spread with adhesive plaster, and perforated with a hole of the size of the proposed issue. The caustic, being held in a paper, or in forceps, is then successively applied to all the skin which is left bare by the perforation. This skin immediately becomes moist, and turns to a dark colour, a burning sensation taking place in the part. If the caustic be good, the vitality of the skin will be destroyed in fifteen or twenty minutes. It may then be washed with vinegar, to neutralize what caustic remains. The use of the adhesive plaster is to prevent the action of the potass from spreading. The dead skin commonly sloughs off in about a week, leaving a cavity, which is most conveniently filled by a piece of wood or cork cut to the size, and occasionally smeared with some irritating ointment, if the part be disposed to heal.

POTASSA CUM CALCE.

Potass with Lime.

This is also an escharotic, resembling the preceding article in its general properties, and employed with the same views. The addition of lime renders the preparation less deliquescent, and, of course, more manageable than pure potass.

AQUA POTASSÆ.

Solution of Potass.

PREPARATION. The carbonic acid, being abstracted by the lime, leaves the solution of potass in a highly caustic state, the alkali being pure, with the exception of a small quantity of lime and some other substances, which do not interfere with its activity.

QUALITIES. This liquid is colourless, of an oily consistence, without smell, and highly caustic. It does not effervesce with acids, nor afford a precipitate with lime water.

USES. It is sometimes used as a caustic, as in the bite of rabid animals, but it is less manageable than concrete potass. It has been much employed internally as a remedy against urinary calculus, but it is less grateful to the stomach than the carbonated alkalies, which are equally efficacious. It is to be remembered, that the only cases, to which it is applicable, are those of calculi composed of lithic acid, or of lithate of ammonia. In these it is found, that alkaline remedies, when administered early in the disease, have some agency in counteracting the tendency to calculous deposition. In the advanced stages, little benefit is derived from them. A chemical examination of the urinary deposits is necessary in the first instance, to decide the question between an acid and an alkaline treatment. Solution of potass is recom-

mended by Dr. Willan in lepra. It is employed to neutralize acidity in the stomach, but its long-continued use debilitates that organ.

EXHIBITION. From ten to thirty minims may be taken, diluted with water or milk.

POTASSÆ SUBCARBONAS IMPURUS.

Impure Subcarbonate of Potass. Called Pearl ash.

The common pearl ash of commerce is obtained from the ashes of wood and herbaceous plants, by lixiviating them, and evaporating the ley to dryness in large iron kettles. An alkaline residue is obtained, usually of a brown colour owing to impurities; and in this state is called *potash*. When the potash is calcined in a reverberatory furnace, its colouring matter is destroyed, its moisture driven off, it acquires a blueish-white colour and spongy texture, and in this state is known by the name of *pearl ash*. Of different trees, hickory and oak afford more potash than the softer woods. The dried stalks of herbaceous plants afford a still greater amount. It has been found, that the stalks of the potatoe yield half their weight of pearl ash, and those of phytolacca more than half their weight. Of various kinds of the potash of commerce examined by Vauquelin, the American was found to exceed that of any other country in strength, or in the amount of pure potass contained by a given quantity. Common pearl ash contains, beside subcarbonate of potass, a portion of sulphate and muriate of potass, oxides of iron and manganese, and sometimes sand, with which it is fraudulently adulterated. Its medicinal properties resemble those of the purified subcarbonate, which is commonly preferred, being a more uniform substance.

POTASSÆ SUBCARBONAS.

Subcarbonate of Potass.

This is the preceding article purified by ignition, solution, defæcation and evaporation. Its insoluble contents are thus got rid of, and the soluble impurities which remain are of no importance in practice. See the following article.

POTASSÆ SUBCARBONAS PURISSIMUS.*

Pure Subcarbonate of Potass. Formerly Salt of Tartar.

PREPARATION. In the process of the Pharmacopœia (p. 191.) the tartaric acid of the cream of tartar is decomposed, and, by the reunion of two of its components, oxygen and carbon, carbonic acid is formed, which combines with the potass, while the remaining carbonaceous matter is burnt out. The subcarbonate, thus obtained, is more pure than that obtained from pearl ash. The name *Salt of tartar* more properly applies to this article than to the preceding, but they are frequently confounded together, and their distinction is of no consequence in medical practice.

QUALITIES AND USES. Subcarbonate of potass, obtained by either of the processes, is a coarse, white powder, deliquescent in the open air, changing vegetable blues to green, forming soap with oils, and effervescing with acids. It is used in medicine to obviate acidity in the stomach, to facilitate the solution of resinous cathartics, and to counteract the formation of lithic calculus. Its *dose* is from ten to thirty grains. Combined with lemon juice, it forms the common effervescing draught, a preparation highly grateful to patients with febrile diseases; and particularly

* See the list of Corrigenda.

efficacious in arresting the process of vomiting. A scruple of the subcarbonate of potass is neutralized by about half a fluidounce of good lemon juice, or by fifteen grains of dissolved citric acid. The mixture should be swallowed while in a state of effervescence.

POTASSÆ CARBONAS.*

Carbonate of Potass.

In the most modern language of chemistry, the two preceding preparations are called carbonates, and this a *bi-carbonate*. According to Dr. Wollaston, the latter contains just twice as much carbonic acid as the former. Since, however, the former salt is decidedly alkaline, and the latter hardly saturated; the present nomenclature of the London and Edinburgh Colleges, which adopts the names of subcarbonate and carbonate, is more descriptive of the pharmaceutical character of the two preparations. An article, sold by our apothecaries under the name of *Sal aeratus*, is an impure carbonate of potass, made by exposing pearl ash, in wooden boxes perforated with holes, to the carbonic acid of a distiller's or brewer's fermenting vat, for several months, until the alkali is nearly or quite neutralized.

QUALITIES. Carbonate of potass has a saline and slightly alkaline taste. It crystallizes in small, tetrahedral, rhomboidal prisms, with dihedral summits, and does not deliquesce in the air, like the subcarbonate. It is *soluble* in four parts of cold water, and in five sixths of its weight of boiling water, losing part of its carbonic acid during the solution. It changes vegetable blues to green.

USES. It is applicable to the same purposes as the subcarbonate, its acid being driven off in the stomach. Its comparatively agreeable taste renders it one of the most pleasant alkaline remedies, both as an antacid, diuretic or antilithic. It is preferable to

* It was first called *Supercarbonas*. See Corrigenda.

the subcarbonate as an ingredient in the effervescing draught, and requires a quarter less of lemon juice for its saturation. From the facility with which it parts with its carbonic acid, it forms a convenient and effectual ferment for bread.

LIQUOR POTASSÆ SUBCARBONATIS.

Solution of Subcarbonate of Potass.

This is a definite mode of keeping subcarbonate of potass in a liquid form. The *dose* is about a fluidrachm.

POTASSÆ ACETAS.

Acetate of Potass.

QUALITIES. It exists in foliated, laminar masses, and deliquesces rapidly in the open air. The taste is sharp and pungent. It is *soluble* in a little more than its weight of water, and in four times its weight of alcohol. It is decomposed by most acids and neutral salts, which are therefore chemically *incompatible* with it.

USES. Small doses, under favorable circumstances, operate powerfully upon the kidneys, whence its old name of *Sal diureticus*. Larger doses operate on the bowels. Dr. Paris supposes, that the digestive organs possess the power of decomposing saline compounds, into which vegetable acids enter as ingredients, and of eliminating their alkaline base, which, being carried into the circulation, acts as an immediate stimulus to the kidneys.

EXHIBITION. A quantity, from a scruple to a drachm, dissolved in water and taken every three or four hours, acts diuretically. Half an ounce is cathartic.

POTASSÆ NITRAS.

Nitrate of Potass. Called Nitre.

ORIGIN. Common nitre, or salt petre, is a natural production, which in some parts of the world effloresces abundantly upon the surface of the soil, particularly in India, from whence the greatest amount consumed in this country is imported. It is also formed artificially, in different countries, by making *nitre beds* of putrifying animal and vegetable substances, which, after fermenting for one or two years, are lixiviated, and the solution evaporated to crystallization. To purify it, the crystals are washed with cold water, dissolved in boiling water, and re-crystallized, with agitation.

QUALITIES. Pure nitre has a pungent, saline taste, accompanied with a sense of coldness in the mouth. It crystallizes in hexahedral prisms with dihedral summits. It is *soluble* in seven parts of cold water, and in its own weight of boiling water. In alcohol it is insoluble. It melts with a moderate heat, and, when cast into moulds, forms *Sal prunelle*.

USES. Nitre is commonly considered refrigerant, and somewhat sedative. It is given in diseases of increased arterial excitement, to allay the action of the circulating system, and diminish heat and thirst. It has, apparently, some influence in increasing the excretion of the kidneys, and in proper quantities operates upon the bowels.

EXHIBITION. A scruple may be given at a time dissolved in water. Two scruples commonly purge. An ounce occasions vomiting and hypercatharsis, and cannot be given with safety. Nitre forms a useful topical application in cynanche tonsillaris; and if portions of it be suffered to dissolve slowly on the back part of the tongue, it is one of the best preventives in the incipient stage of that complaint.

POTASSÆ SULPHAS.

Sulphate of Potass. Formerly Vitriolated Tartar.

ORIGIN. After the distillation of nitric acid from nitre and sulphuric acid, there remains in the retort an acidulous sulphate of potass, known to the old chemists by the name of *Sal enixum*. When this salt is dissolved, and its superfluous acid saturated with potass, the crystals, which form on evaporation, consist of a neutral sulphate. This was formerly known by the names of *Vitriolated tartar*, *Sal de duobus*, &c.

QUALITIES. It commonly crystallizes in six-sided prisms, terminated by hexagonal pyramids; sometimes also in dodecahedrons. Its taste is bitter, acrid and saline. It is slowly soluble in five parts of boiling water, and in sixteen parts of cold. In the fire it decrepitates and melts.

USES. This salt is purgative in doses of from a drachm to half an ounce. It is less in use than many of the other cathartic salts, and is more frequently employed as a dividing medium in the formation of powders and pills.

EXHIBITION. On account of its sparing solubility, it may be given in powder with a proper vehicle.

NOTE. The old *Sal polychrest* is a sulphate of potass with sulphur. The presence of sulphur occasions no important change in its medicinal properties.

POTASSÆ TARTRAS.

Tartrate of Potass. Formerly Soluble Tartar.

PREPARATION. In the process for preparing this article, the superabundant acid of the cream of tartar is saturated by the subcarbonate, and a neutral tartrate is obtained.

QUALITIES. If the evaporation has been conducted hastily, this salt exists in a granular form: if very slowly, it crystallizes in tetrahedral prisms, with dihedral summits. In the latter form it is *soluble* in its own weight of cold water, but in the granular shape it requires four times as much. When kept long in solution, it changes to a subcarbonate. Alcohol dissolves it readily. Acids, acidulous salts and sour fruits convert it into a super-tartrate. Magnesia and lime decompose it.

USES. It is a valuable purgative, and forms a useful adjunct to senna and the resinous cathartics.

EXHIBITION. From a drachm to an ounce, dissolved in water, may be given for a *dose*.

POTASSÆ ET SODÆ TARTRAS.

Tartrate of Potass and Soda. Called Rochelle Salt.

This is a triple salt, formed by neutralizing the excess of acid in cream of tartar, with soda. It has a bitter, saline taste, but is less unpalatable than most of the saline cathartics. Its crystals are large, hard, transparent, rhomboidal prisms, very slightly efflorescent, and *soluble* in five parts of cold water.

USES. Rochelle salt is an excellent cathartic, operating with mildness, and disagreeing less with the stomach than many articles of its class.

EXHIBITION. From half an ounce to an ounce, dissolved in water, operates with ease and certainty. A solution of this salt in carbonic acid water forms a popular and useful laxative, sold in many of our cities under the name of *Rochelle water*.

POTASSÆ SUPERTARTRAS.

Supertartrate of Potass. Called Cream of Tartar.

ORIGIN. The casks, in which some kinds of wine are kept, become gradually incrustated with a hard, saline substance, tinged with the colouring matter of the wine, and otherwise impure; which has long been known by the name of *tartar*. When this saline crust is purified by solution, filtration and crystallization, it constitutes the common *Cream of tartar*, or *Crystals of tartar*, of commerce.

QUALITIES. This salt exists in small, irregular crystals, generally run together in small masses, white, semitransparent and gritty. Its taste is harsh and acid. It is much less *soluble* than the foregoing salts of potass, requiring for its solution 30 parts of boiling, and 120 parts of cold water. The solution decomposes spontaneously by keeping, a mucous matter is deposited, and there remains a solution of carbonate of potass, coloured with a little oil.

USES. Cream of tartar is refrigerant, diuretic and laxative, according to the quantity and mode of its exhibition. Small doses, in solution, form a cooling drink in febrile diseases, and excite the urinary excretion. Large doses, in substance, occasion copious watery discharges from the bowels. It is a very useful medicine in dropsical cases, whether it operates by the kidneys or alimentary canal. Its diuretic activity is increased by combination with squill. When added to the resinous purgatives, it renders them better suited to inflammatory cases, as in the *Compound powder of jalap*. Combined with sulphur, it is a popular internal remedy in various diseases of the skin.

EXHIBITION. A saturated solution in cold water may be used freely as a refrigerant and diuretic, forming, when sweetened, an agreeable liquid. The solution is more readily prepared, if hot water be employed, and subsequently cooled with ice. When intended to act as a purgative, cream of tartar should be given in

fine powder, mixed with treacle or syrup. From two to six drachms, taken in this way, prove an active cathartic. In dropsical cases, some practitioners prefer giving a drachm every three or four hours.

PRINOS.

Black Alder.

The bark of the *Prinos verticillatus*, a native shrub, is a moderate tonic. It has been used in intermittent fevers, dropsies and cutaneous diseases. Its bitterness and astringency, however, are of an inferior order, and it does not seem entitled to a very high rank on the list of tonics.

PRUNA.

Prunes.

Prunes are the dried fruit of the common plum tree. Those of the best quality are imported from France. They contain mucus, sugar and malic acid, and have an agreeable taste. They are nutritious and laxative, and are found useful by many persons, habitually taken, to obviate costiveness. Where they oppress the stomach, the skins should be rejected.

PRUNUS VIRGINIANA.

Wild Cherry Tree.

The bark of this native tree is bitter and aromatic, its taste being strong, penetrating, and not disagreeable. It is undoubt-

edly a useful tonic, and appears to possess, in some degree, a narcotic and antispasmodic property. The latter quality is strongest in the recent state, and in the distilled water. The powdered bark may be given in *doses* of from ten to fifteen grains. This tree, probably, contains prussic acid.

PULVERES.

Powders.

The form of powder is a useful mode of exhibiting most medicines, which require to be given in substance. It is particularly adapted to those, the active parts of which are insoluble in any one menstruum, and which are too large in bulk to be conveniently made into pills. It is an improper form for articles which are deliquescent, or adhesive, or of a volatile nature. It has also been thought by some, that minute subdivision impairs the activity of certain medicines by lessening their solubility, as in bark, rhubarb and guaiacum; but this subject requires further investigation.

In compound powders, the articles should be intimately rubbed together in a mortar. Some dry substances are liable to act chemically on each other during their trituration; and some even deliquesce in the process. Care should be taken that we do not, in this way, produce uncertain or unmanageable compounds.

Powders should be kept in close-stopped bottles, and in a dry and shady place.

PULVIS ALOES CUM CANELLA. *Powder of Aloes with Canella. Formerly Hiera Picra.*—This is an old and well-known compound, and its popularity furnishes the principal market for canella. It is a heating purgative, not well adapted to inflammatory cases. From ten to twenty grains may be taken at a *dose*; but the popular form is to digest an ounce in a pint of rum, and to take half a fluidounce, or more, at a time.

PULVIS AROMATICUS. *Aromatic Powder.*—A hot, spicy carminative. *Dose*, ten or twenty grains.

PULVIS CALCIS CARBONATIS COMPOSITUS. *Compound Powder of Carbonate of Lime.*—Antacid, astringent and aromatic. Given in diarrhœa, &c. in *doses* of ten or twenty grains.

PULVIS IPECACUANHÆ ET CUPRI SULPHATIS. *Powder of Ipecacuanha and Sulphate of Copper.*—This powder is a very powerful emetic, if the whole be taken at once.

PULVIS IPECACUANHÆ ET OPII. *Powder of Ipecacuanha and Opium. Formerly Dover's Powder.*—This compound offers a remarkable instance of modified action, produced in one medicine by the presence of another. The specific powers, both of the opium and ipecacuanha, are mutually restrained, and the action of the compound is directed to the cutaneous vessels, forming a powerful sudorific. The only use of the sulphate of potass is, to promote the subdivision of the other ingredients. This powder should be taken in bed, and the body kept warmly covered. No drink should be taken after it till the sweat begins to break out, after which, plentiful dilution may be used. It is given in rheumatism, gout, dysentery, &c. in *doses* of ten or fifteen grains. It is often useful to increase the quantity of ipecacuanha.

PULVIS JALAPÆ COMPOSITUS. *Compound Powder of Jalap.*—Jalap, when triturated with cream of tartar, becomes more minutely subdivided than if pulverized alone. By the presence of the cream of tartar, it is rendered more easy in its operation, and better suited to inflammatory cases or dropsy. *Dose*, a drachm, or somewhat more.

PULVIS SCAMMONII COMPOSITUS. *Compound Powder of Scammony.*—Less irritating and more effectual than pure scammony. *Dose*, about a scruple.

PYRETHRUM.

Pellitory of Spain.

The *Anthemis pyrethrum* is a perennial plant, growing in the south of Europe and the Barbary states. Its dried root is extremely pungent, and is chiefly used as a topical stimulant to the mouth in tooth-ache, paralytic affections of the tongue and muscles of deglutition, head-ache, &c. It excites a copious flow of saliva.

PYROLA.

Pyrola.

The *Pyrola umbellata*, or *winter green*, is a common plant of the American forest. Its leaves have a taste intermediate between sweet and bitter, which, in the stalk and roots, is combined with some pungency. Spirit extracts these properties; likewise water, though less perfectly. This plant has been formerly used in rheumatism. More recently it has been found a very useful palliative in strangury and nephritis, both in this country and in Europe. In dropsy it has sometimes exhibited striking effects as a diuretic, a pint of the saturated infusion being taken every twenty-four hours. It has the advantage over the more common diuretics, that it does not offend the stomach, but, on the contrary, invigorates that organ, and assists digestion. The bruised leaves, externally applied, act as a rubefacient and a discutient to indolent swellings.

QUASSIA.

Quassia.

ORIGIN. The *Quassia excelsa*, from which this wood is obtained, grows naturally in the West Indies, and is called, in Ja-

maica, *bitter ash*. The wood is imported here in blocks and billets. Several other species resemble this in their medicinal properties.

QUALITIES. Quassia wood is of a pale, yellowish colour, and an intensely bitter taste. Water, alcohol and ether extract its bitterness. Dr. Thomson supposes this property to reside in a peculiar substance, to which the names of *bitter principle* and *quassin* have been given. It is precipitated from its solutions only by nitrate of silver and acetate of lead.

USES. Quassia is one of the most valuable of the bitter tonics. It is less heating and oppressive than most other substances of its class, and can be taken with impunity by many patients, in whom cinchona and the more powerful tonics bring on head-ache, constriction of the stomach, and febrile symptoms. It has an invigorating effect on the stomach and bowels, and is peculiarly serviceable in dyspeptic complaints. In incipient convalescence from febrile and inflammatory diseases, quassia is one of the safest agents, with which a tonic course, provided this is necessary, can be commenced.

EXHIBITION. Quassia is reduced by rasping to the fineness of saw-dust, and is then best exhibited in the form of one of its *infusions*; which see.

QUERCUS ALBA.

White Oak.

Most, and perhaps all the species of oak have a high degree of astringency, depending upon tannin, which they possess in great quantities, and on account of which they are extensively used in the preparation of leather. The white oak is one of the American species, which is most esteemed for this property. The bark of the young branches is probably more astringent than that of the trunk, on account of the mass of dead cortical layers, which constitutes a part of the thickness of the latter. Oak bark

has been given in some instances as a substitute for cinchona, to which, however, it is greatly inferior. Its chief use is as an external astringent and antiseptic. A strong decoction is employed with advantage as a gargle in cynanche, and as a lotion in gangrenous ulcers and offensive discharges of different kinds.

QUERCUS TINCTORIA.

Black Oak.

This is also a native species, the bark of which affords the extract known to dyers by the name of *quercitron*. Its properties are similar to those of the preceding. Both are very common trees, and are properly substituted for the *Quercus robur* of European dispensaries, which is not found here.

RANUNCULUS.

Crowfoot.

The family of *Ranunculus*, with the exception of a very few species, is characterized by a violent acrimony, which resides in every part of their structure. A variety of acrid species are common in this country, and known under the name of *buttercups*. They impart a pungent, burning sensation to the tongue, and inflame and vesicate the skin in some individuals. The acrimony is of a volatile nature, and is retained in perfection by the distilled water, while the decoction and boiled root are inert. Before the introduction of cantharides, the roots of ranunculus were much used as rubefacients and blisters. They appear to have been much less certain than flies in their operation, and in some instances to have occasioned deep running sores, which it was

found difficult to heal. All individuals are not susceptible of their operation.*

RESINA PINI.

Pine Resin.

Common turpentine consists of resin held in solution by a volatile oil. All species of the pine tree contain it, but most of the turpentine consumed in the United States, and likewise that which forms a considerable article of export from this country, is obtained from the southern pitch pine, which is the *Pinus palustris* of Linnæus, and *P. australis* of Michaux. At distilleries of this article, the oil of turpentine passes over and leaves the resin behind, which is afterwards sold in barrels under the name of *rosin*.

QUALITIES. It is brittle, cracking with slight changes of temperature, becoming plastic and afterwards melting with a moderate heat. It is yellowish in small pieces, semitransparent and acrid to the taste. It is very inflammable, burning with a strong, red, smoky flame. It is insoluble in water; but *soluble* in oil, alcohol, ether, alkalies and acetic acid. It consists of carbon, hydrogen and oxygen.

USES. Pine resin is not given internally, but enters into the composition of various plasters, cerates, &c. It should be purified by the apothecary by melting and straining.

RHAMNUS.

Buckthorn.

The *Rhamnus catharticus*, which affords this article, is an European shrub, not found in the United States. The berries have

* See American Medical Botany, Vol. III. 61.

a bitterish, acrid, nauseous taste, and are highly cathartic. Their operation is unpleasant, being attended with griping and thirst. A scruple of the fresh berries, or a drachm of the dried, forms a dose. See *Syrup of buckthorn*. In this country it is often confounded with *Cratægus crus galli*.

RHEUM.

Rhubarb.

ORIGIN. Rhubarb is the dried root of the *Rheum palmatum*, a plant found native in Tartary and China, and perfectly susceptible of cultivation in the United States. Boerhaave and some others have supposed the Chinese rhubarb to be produced by the *Rheum undulatum*; and it is possible that several co-species may furnish the article of commerce. Three varieties of rhubarb are known to druggists—the Russian, the Turkey and the East Indian or Chinese. The two first resemble each other in appearance and quality, while the last is of a somewhat different character.

QUALITIES. The best *Russian* or *Turkey* rhubarb comes in roundish pieces, perforated with a large hole, of a yellow or reddish colour, breaking with a ragged fracture, and marked internally with diverging red streaks. It has a peculiar, somewhat aromatic odour, and a bitter, subacrid, astringent taste; feels gritty when chewed, and communicates to the saliva a bright yellow colour. Its powder is of a buff yellow. Boiling water dissolves 40 parts in 100, alcohol 27, ether 15. The infusion is of a brown colour, the tinctures of a bright golden yellow. *Chinese* or *East India* rhubarb comes in oblong or flattish pieces, seldom perforated; is more heavy and compact, of a brownish yellow outside, and variegated with yellow and white within. It has a stronger odour, and a more nauseous taste than the *Turkey* rhubarb. It is also more soluble, water taking up one half

its weight, according to Mr. Thomson; alcohol two fifths, and ether one fifth.

Various chemical analyses of this root have been made by different experimenters, with results which do not fully accord with each other. M. Henry, in the *Bulletin de Pharmacie*, announces the existence of the following principles, detected by him, both in the French and Russian rhubarb: 1.—A yellow colouring principle, insoluble in cold, but soluble in hot water, also in alcohol and ether. 2.—A sweetish, fixed oil, soluble in alcohol and ether. 3.—A small quantity of gum. 4.—An amylaceous substance. 5.—Supermalate of lime. 6.—Oxalate of lime, one sixth of the whole! 7.—A salt of potass. 8.—Sulphate of lime. 9.—A small portion of oxide of iron. 10.—Tannin. 11.—Woody fibre.—Mr. A. L. Thomson, in his *Dispensatory*, details a great number of experiments made with rhubarb, which lead him to conclude, that it contains a large portion of extractive matter, a small portion of resin, mucus, tannin, gallic acid, a colouring matter, much oxalate of lime, and minute portions of alumina and silex. The Russian rhubarb contains more tannin, oxalate of lime and resin; the Chinese more extractive and gallic acid.—Lastly, Mr. Brande, in the *Quarterly Journal of Science*, informs us from his own analysis, that a hundred component parts of rhubarb are, water 8.2,—gum 31.0,—resin 10.0,—extract, tan and gallic acid 26.0,—phosphate of lime 2.0,—malate of lime 6.5,—woody fibre 16.3.—A peculiar acid, supposed by Mr. Henderson to exist in rhubarb, and to which he gave the name of *Rheumic acid*, turns out to be no other than the oxalic, according to M. De Lassaigues.

USES. Rhubarb has long been known as a valuable cathartic. Its operation is slower than that of many other purgatives, but is nevertheless sure and effectual. It is less adapted to cases where drastic purging is required, than to those which call for a medicine of mildness and safety. It is particularly resorted to for relief of the bowels, in debilitated patients, in cases where violent purging would be improper or unsafe. It is also a common purgative for children. A combination of this medicine with calomel forms an active and useful evacuant, the cathartic

power of each being reciprocally increased by the presence of the other. Rhubarb has an astringent and tonic power, in common with its purgative property. It is hence particularly adapted to the treatment of common diarrhœa, since it leaves the bowels in a favorable state after the dislodgement of the offending matter. Small doses are useful as a tonic in some dyspeptic cases, in chlorosis and hypochondriasis.

EXHIBITION. Various preparations, particularly tinctures, are made from this article, but no one operates so certainly as the substance in fine powder. From a scruple to half a drachm, mixed with treacle or jelly, or diffused in some aromatic water, opens the bowels freely. The operation of rhubarb may be known to have taken place by the yellow colour it communicates to the alvine discharges, a circumstance which it is important to attend to in some questions relating to the repetition of cathartics in critical cases. As a stomachic, from two to six grains may be given as often as can be done without purging. The popular practice of toasting rhubarb only diminishes its activity, without adding to it any valuable property.

RHUS GLABRUM.

Sumach.

The berries of this, and several other American species of sumach, have a strong, acid taste, and at times exhibit crystallized or saline particles on their surface. Dr. Horsefield supposes the acid they contain to be the tartaric; but it is, not improbably, an acid *sui generis*. The acidulous infusion of these berries is used as a refrigerant in fevers, and a gargle in sore throats. The bark and leaves of the shrub are highly astringent, and are used in tanning leather.

RICINI OLEUM.*Castor Oil.*

ORIGIN. The plant called *Ricinus communis*, or *Palma Christi*, is found in most tropical countries, and will grow in any temperate latitude, where the summer is sufficiently long. Castor oil is obtained from the seeds by divesting them of their outer coat, bruising, and subjecting them to pressure. The *cold-drawn* oil, extracted by pressure without heat, is incomparably the best. The oil extracted by boiling the bruised seeds in water is more nauseous, darker coloured, easily becomes rancid, and is sometimes violent in its operation. The best oil now in our markets is prepared in the United States, principally at the southward.

QUALITIES. Good cold-drawn castor oil is thick, viscid, transparent and nearly colourless. It has little taste, but leaves a slight sensation of acrimony in the throat, after it is swallowed. Oil obtained by boiling has a brownish hue. Both kinds become rancid by age and exposure, deepen in colour, and acquire a hot, nauseous taste. In chemical qualities this resembles the other fixed vegetable oils, but is more *soluble* in alcohol and ether, particularly the latter.

USES. This, like the other fixed oils, if taken in small quantities, is simply nutritive and demulcent. In larger quantities than the stomach can digest, it passes unchanged through the body, exerting a cathartic stimulus on the mucous coat of the intestines. Compared with other purgatives, it is very quick and very mild in its operation. It is peculiarly suited to cases, in which more irritating purgatives would prove hurtful; as in nephritic and calculous affections, in colica pictonum, and after injuries or surgical operations, in which the abdominal viscera are concerned. It is an excellent purgative for young infants, and for women in child-bed, at the commencement of lactation. Castor oil produces more fæcal and less liquid evacuations than the neutral salts.

It is less suited than some other cathartics to the disease of hemorrhoids, and indeed sometimes aggravates that complaint.

The *seeds*, from which castor oil is extracted, are covered with an acrid skin, which renders them both emetic and highly drastic. It is probable that the oil obtained by boiling the seeds is impregnated with the properties of the skin. Two of these seeds will occasion purging; and their use was known to Hippocrates. Some attempts have been made to qualify their operation by different modes of preparation, but without success.

EXHIBITION. Although good castor oil is rather insipid than unpleasant, as is proved by the facility with which infants take it; yet most adults have a great aversion to swallowing it. The disgust is more effectually overcome by concealing its oily consistence than its taste; and by obviating associations rather than sensations. If a spoonful be dropped into cold water, it collects into a roundish mass, which many persons swallow with ease, like the yolk of an egg, especially if covered with a few drops of any common spirit. It may also be rubbed into an emulsion with mucilage, sugar or yolk of eggs, and flavoured with cinnamon or mint water. Many persons prefer taking it in coffee or chocolate. Ardent spirits are a common addition to castor oil, but are medicinally incompatible with it, when added in any considerable quantity. The *Compound tincture of senna* is much more appropriate, and, when blended with the oil by agitation, conceals its qualities and increases its operation. The common *dose* of oil is a fluidounce or somewhat less; for infants from one to three fluidrachms.

ROSA.

Rose.

The London and Edinburgh Colleges direct for officinal use the petals of two kinds of rose, the *Rosa gallica* and *R. centifolia*. Sir J. E. Smith, in his elaborate article in Rees' Cyclopædia,

pronounces these to be mere varieties of the same species. Innumerable varieties, indeed, both in colour and form, are found among those cultivated in our gardens.

QUALITIES. The odour of these petals is extremely fragrant, and their taste sweetish, subacidulous and astringent.

USES. They are employed for the distillation of rose water, the formation of *Confection of roses*, &c. They are mildly astringent, but more used as a pleasant accompaniment to other medicines than for any active properties of their own.

ROSMARINUS.

Rosemary.

Rosemary is a shrubby plant of the south of Europe and of Barbary, occasionally cultivated in this country. Both the leaves and flowers have a grateful, aromatic odour, and a bitterish, warm, pungent taste. It is stimulant and carminative, but more used to communicate a pleasant quality to other medicines than for its own specific powers.

RUBIA.

Madder.

Madder is a native of the south of Europe, and is extensively cultivated as a valuable colouring substance. In a medicinal view, it is rather an inert drug; yet has acquired some reputation as an emmenagogue, in *doses* of a scruple three or four times a day.

RUBUS TRIVIALIS.

Dewberry.

The bark of the root of the *dewberry*, or *low blackberry*, a common, native briar, is highly astringent, possessing both tannin and gallic acid in large quantity. It is a popular remedy in cholera infantum, to which disease it appears well suited after liberal evacuations have been made. In the secondary stages of dysentery, and in diarrhœa, after the removal of offending causes from the alimentary canal, it has been resorted to with success in controlling the discharges, and giving tone to the bowels. It is usually exhibited in strong decoction.

RUBUS VILLOSUS.

Blackberry.

This is commonly distinguished from the preceding by the name of *high*, or *tall blackberry*. The properties of the two are the same.

RUMEX BRITTANICA.

Water Dock.

The common American water dock, which grows in wet, boggy soils, and upon the margin of ditches, is a moderately stimulating and astringent plant. It is esteemed by many country practitioners as a local application to indolent and ill-conditioned ulcers. A strong decoction of the root is usually employed as a wash in these cases. Sometimes an ointment, formed by simmer-

ing the root in hog's lard, is beneficially applied in herpes. The use of this plant, according to Colden, was learned from the Indians.

RUMEX OBTUSIFOLIUS.

Blunt-leaved Dock.

This species of dock is a foreign plant, naturalized as a weed in the cultivated grounds of this country. The root is bitterish and astringent. A decoction of it, taken internally, is laxative. Externally it is applied for the cure of ulcers and cutaneous diseases, and sometimes with very good effect. The *Rumex crispus*, or *curled dock*, another imported weed, resembles this in its qualities, and, in the form of ointment or decoction, is found to cure mild cases of psora and other eruptions.

SABBATIA.

American Centaury.

This is the *Chironia angularis* of Linnæus. It is a native of damp, rich soils, in the middle and southern parts of the United States, where it is commonly known by the name of *centaury*. Every part of the plant is a pure, strong bitter, and communicates its qualities to both water and alcohol. It appears to be a remedy in considerable use at the south for intermittent fever. On the stomach it exerts an invigorating influence, and promotes appetite and digestion. It may be given in powder in doses of ten or twenty grains, or in infusion, which is the more common mode.

SABINA.

Savin.

ORIGIN. The true savin tree belongs to the old continent, though a variety of it is said to grow in the northern and western parts of America.

QUALITIES. The leaves have a strong, heavy, disagreeable odour, and a hot, bitter taste. They afford a volatile oil by distillation. Water and alcohol extract their active principles, but the latter most abundantly.

USES. Savin is a strong stimulant, augmenting the force of the circulation, promoting diaphoresis, and acting specifically on the uterine system. It is used in cases of amenorrhœa, which are unattended with inflammatory or febrile symptoms, and where the skin and extremities are cold, and the pulse languid. In plethoric habits, its use should be preceded by venesection. Professor Chapman speaks with great confidence of its efficacy in some forms of chronic rheumatism. It has had some reputation as a vermifuge; and its affinity to the terebinthinate remedies would seem to justify the credit attached to it. Externally it is applied as a stimulant to indolent ulcers, to some cutaneous eruptions, and to blisters intended to be permanent.

EXHIBITION. Ten or fifteen grains may be taken thræe times a day in powder, which may be increased gradually to several times the quantity, if it does not produce febrile symptoms, pain, disturbance of the alimentary canal, or strangury. Externally the powder, or the *Savin cerate*, may be applied.

SACCHARUM.

Sugar.

ORIGIN. The sugar-cane is a native of India; it is cultivated in most tropical countries, and succeeds as far north as Louisiana

and the southernmost parts of the United States. This cane contains a saccharine juice, which, when crushed out between iron rollers, and boiled down to a certain consistence, deposits crystals of raw sugar, leaving a dark viscid fluid, known by the name of molasses. *Raw sugar*, called also *brown* and *muscovado* sugar, is refined in this country by the sugar boilers. It is coarsely ground, dissolved in lime water, and clarified with bullocks' blood; then boiled down to a proper consistency, the impurities being skimmed off as they rise, and poured into conical earthen vessels, where it is allowed to grain or crystallize. The point of the cone is perforated, and the base covered with moist clay, the moisture of which percolates the sugar, and runs off through the perforated apex, which is placed undermost, carrying with it the uncrystallized, impure syrup. In this state it is called *loaf* sugar, and requires a second purification before it becomes completely refined sugar.

QUALITIES. *Raw* sugar has a peculiar smell, and a strong, sweet taste. It is in masses of small, sparkling, irregular crystals, of a yellowish colour. *Refined* sugar is inodorous and simply sweet. Its colour is pure white, and the mass or loaf, in which it is concreted, is hard, brittle, pulverulent, and not deliquescent in the air. It dissolves in its own weight of cold water. When united at a higher temperature with a smaller quantity, it remains dissolved, forming syrup. Four parts of boiling alcohol dissolve one of sugar, but by rest a portion of it separates again in crystals. Oils also readily combine with it, and the solution is miscible with water, forming an emulsion. Lime and the fixed alkalies form compounds with sugar, which are not sweet. Sugar consists, according to Thenard and Gay Lussac, of oxygen 50.63, —carbon 42.47,—and hydrogen 6.90.

Molasses or treacle, is the uncrystallizable part of the juice of the sugar-cane, consisting of sugar in a state of combination with other vegetable principles. Both molasses and solutions of sugar undergo the vinous fermentation, and yield large quantities of alcohol on distillation.

USES. Both sugar and molasses are demulcent, and serve to allay the irritation of inflamed mucous membranes. Brown

sugar and molasses are laxative, but refined sugar has been supposed to have an opposite tendency. Sugar is highly nutritive, especially in the natural combinations, in which it exists in ripe fruits and esculent roots; though Magendie has shewn, that animals cannot be supported long upon sugar alone. Given in large quantities it is an antidote for the poison of verdigris. Sugar is extensively used in pharmacy to improve the taste of medicines, and as the basis of *syrups*, *troches* and *confections*. It is a common and useful agent in preventing the decomposition of animal and vegetable substances.

SAGO.

Sago.

Sago is the pith of one or more species of *Cycas*, a genus of palm trees growing in India and Japan. It is procured by splitting the trunks, and scraping out the inner portion, which is afterwards freed from woody fibres by agitation in water. Sago is used as bread, and constitutes a great part of the food of many tribes in the places where it grows. It is granulated for exportation by forcing it through a coarse sieve, and drying it with heat. It comes to us in hard, round, whitish grains, of a farinaceous character, wholly *soluble* in boiling water. It constitutes a light, nutritive aliment for the sick, and is prepared by boiling the grains till they are dissolved, and seasoning it with sugar, nutmeg, wine or salt.

SALEP.

Salep.

This is a farinaceous powder, brought from Turkey, where it is made from the roots of several species of *Orchis*. It is a less delicate article than *Maranta*, or arrow root, which it resembles in its properties.

SALIX.*Willow.*

Several native species of willow have been advantageously introduced into medical use. The one indicated by the Pharmacopœia has a bark, which is extremely bitter, and possesses considerable astringency. I have the authority of some physicians of the highest standing for commending it as a powerful and salutary tonic, particularly in complaints of the stomach. It is susceptible of the same modes of exhibition as cinchona.

SAMBUCUS.*Elder.*

The *Sambucus Canadensis* is substituted in the Pharmacopœia for the *S. nigra* of European books, which is not found native in the United States. They are co-species, closely resembling each other. The latter, however, is a tree; the former a shrub. The berries have a sweetish, sickly taste, and contain saccharine matter, and an acid, probably the malic. They are moderately laxative, and have been accounted expectorant. An infusion of elder flowers is a popular diaphoretic.

SANGUINARIA.*Blood Root.*

This is an indigenous article, derived from the *Sanguinaria Canadensis*, one of our earliest flowering plants, common in woods in various parts of the United States.

QUALITIES. The root is brownish externally; but, when broken, emits a bright vermilion or orange-coloured juice. This

root has a bitter taste, leaving a sense of acrimony in the throat when swallowed. Besides fibrous matter, it contains resin, fæcula, bitter extractive, and an acrid principle.

USES. The medicinal properties of blood root are those of an acrid narcotic. When taken in a large dose, it irritates the fauces, leaving a disagreeable sensation in the throat for some time after it is swallowed. It occasions heartburn, nausea, faintness, and frequently vertigo and diminished vision. It also vomits; but, in this operation, it is less certain than many other emetics in common use. When given in smaller doses, such as produce nausea without vomiting, and repeated at frequent intervals, it lessens the frequency of the pulse in a manner somewhat analogous to the operation of digitalis. This, however, is a secondary effect, since, in its primary operation, it seems to accelerate the circulation. In still smaller doses, such as do not disturb the stomach, it has acquired some reputation as a tonic. It has been given in phthisis, both as a preventive in the early symptoms, and as a palliative in the confirmed disease; also in catarrh, typhoid pneumonia, dyspepsia, and various other complaints; in which, however, its use should not exclude the employment of more active means. It should be dried a short time before it is to be used, as the virtues are much impaired by age.

EXHIBITION. From ten to twenty grains ordinarily produce vomiting. Many country physicians prefer an infusion made with a drachm of the powder to a gill of water, of which a table spoonful may be repeated till the effect of the medicine is obtained. As a tonic, the *tincture* is more frequently used.*

SANTALUM.

Red Sanders.

Red sanders is the wood of a tree growing in the East Indies. It has a fine red colour, which becomes darker on exposure to

* See a paper on this plant by Dr. Wm. Tully, New England Journal, VIII. 106.

the air. The colouring matter is of a resinous nature, and is readily imparted to alcohol, but not to water. Red sanders has no particular medicinal efficacy, but is retained in most pharmacopœias as a colouring drug for tinctures.

SAPO.

Castile Soap.

Soaps are combinations of alkalis with oils; soda producing *hard*, and potass *soft* soap. Earths and metallic oxides have also the property of forming a kind of soaps with oils. Castile soap is made from olive oil and soda; its marbled appearance being given by the sulphate and red oxide of iron, which are mixed in at different stages of the process by which it is made.

QUALITIES. Good soap should have little odour, and a disagreeable, alkaline taste. With water it forms an opaque, milky solution; and with alcohol a nearly transparent one. It is decomposed by all the acids, and by many neutral salts. Hence hard water curdles soap, by abstracting its alkali and leaving an insoluble residue. According to Pelletier and others, new made soap contains oil 60.94,—alkali 8.56,—water 30.50. A part of the water is lost by age.

USES. Soap is a convenient substance in pharmacy for the formation of pills, particularly of resinous powders, the solution of which in the stomach it is supposed to facilitate. With saline compounds it is a less proper adjunct, being liable, in many of them, to produce decomposition. As an antidote to certain metallic poisons, it possesses some efficacy, and has the advantage of being always at hand. Considered as a medicine in diseases, soap possesses no activity beyond that of the alkali with which it is made.

SARSAPARILLA.

Sarsaparilla.

According to Muhlenberg and some other botanists, the *Smilax sarsaparilla* is a native of the United States, though the root is usually imported from South America. Pursh thinks it identical with *S. glauca* of Michaux.

QUALITIES. The imported root comes in long, slender twigs, covered with a wrinkled, brown bark, white within, and having a small, woody heart. It is without smell, and, when chewed, is mucilaginous and slightly bitter. Boiling water extracts its properties.

USES. Sarsaparilla is a mild demulcent, alterative and sub-tonic. It has, at several distinct times, enjoyed reputation as a remedy in syphilis, either as a specific for the disease, an auxiliary to mercury, or a resource in cases where mercury fails. Recently its use has been revived in the antiphlogistic treatment of syphilis, since that disease has been found curable without mercury. Perhaps there are other mucilaginous roots, which would answer as well,

SASSAFRAS.

Sassafras.

The *Laurus sassafras* is found in almost every part of the United States. Its bark has a fragrant smell, and an agreeable, spicy taste, that of the root being most pungent, and that of the branches more pleasant. A volatile oil is the chief seat of these properties. Sassafras was formerly much celebrated in syphilis, rheumatism and dropsy; but is now much less noted than formerly. Its properties are those of a warm stimulant and dia-

phoretic, which qualities it possesses with a multitude of other vegetables. The pith of the twigs of this tree is highly mucilaginous, and a minute quantity renders water viscid and ropy. Mucilage of sassafras pith is peculiarly mild and lubricating, and has been used with much benefit in dysentery and catarrh, and particularly as a lotion in the inflammatory stages of ophthalmia.

SCAMMONIUM.

Scammony.

ORIGIN. This gum resin is brought from Syria and the central parts of Asia. It is procured from the roots of *Convolvulus scammonia*, by cutting off the top and collecting the juice which runs out. Each root yields a few drachms only, and is exhausted in about twelve hours. The juice is inspissated by evaporation, but is frequently adulterated with flour, ashes and sand. The Aleppo scammony is considered more pure than that from Smyrna.

QUALITIES. Good scammony is in blackish-grey cakes, which are light and friable. It has a peculiar, heavy odour, and a bitter, acrid taste. When rubbed with the wet finger, the surface becomes white with emulsion, or lather. Water, by trituration, takes up one fourth, and alcohol two thirds. Diluted alcohol dissolves all but the impurities.

USES. Scammony is a powerful drastic purgative, in which character it was known to the ancients. It has been used in cases of dropsy, hypochondriasis, worms, &c. The reports of medical authors differ somewhat in regard to its activity, probably owing to the variable quality of the drug.

EXHIBITION. Scammony is less frequently administered alone, than in composition with other medicines of its class. It enters into various cathartic formulæ. When administered by itself, from five to fifteen grains are a proper dose, triturated with almonds, syrup or some other demulcent, to prevent it from irritating the fauces.

SCILLA.*Squill.*

ORIGIN. The countries, both of Europe and Africa, which border on the Mediterranean, produce the *Scilla maritima*, a perennial, bulbous-rooted plant. The country around Athens is said to abound with this vegetable. The bulb is large, pear-shaped and coated, and is brought to us either in its living state, covered with sand, or in the form of dried scales, which constituted the coats of the bulb.

QUALITIES. The taste of the squill is nauseous, bitter and acrid, and its recent juice inflames and ulcerates the skin. Its active properties are of a volatile nature, and are much impaired by keeping, especially in the form of powder. They are also diminished by boiling. Alcohol and vinegar are adequate solvents for this medicine. Water also extracts the bitterness, but without much of the acrimony. According to Vogel, squill contains of gum 6 parts,—tannin 24,—sugar 6,—woody fibre 30,—and 35 of a bitter principle, which is white, transparent, and breaks with a resinous fracture. This has received the name of *scillitin*.

USES. Squill, in large doses, is a powerful emetic and cathartic, but is too irregular in its operation to be much used for this purpose alone. In smaller doses, properly managed, it acts on the kidneys as a diuretic. With a view to this object, it is advantageously combined with small quantities of opium, to prevent its action on the alimentary canal, and with calomel, which appears to augment its diuretic activity. Various other substances are supposed to augment the diuretic power of squill, such as oxymuriate of mercury, supertartrate of potass, oil of turpentine, and cantharides. Squill is usually ranked with the class of medicines called expectorants, and, when given in nauseating doses, it commonly increases the discharge from the mucous membrane of the lungs. It is too stimulant, however, to be used in pulmonary inflammations, which are of a kind to require bleed-

ing and vesication, and is seldom indicated until spontaneous expectoration begins to take place. When, however, the inflammation does not extend to the cellular texture of the lungs, but is confined to the mucous membrane, as in catarrh, bronchitis, and some kinds of asthma; the squill is a more appropriate remedy. Preparations of squill are frequently given to children for minor complaints of the lungs, with considerable benefit, especially when they produce vomiting.

EXHIBITION. As a diuretic, squill is best given in substance, in the combinations above-mentioned. One grain may be given at first, and in a pill, three times a day, and gradually raised to six or more, if nausea does not take place. In pulmonary complaints, the *syrup* and the *acetated honey* of squill are very popular medicines; likewise the squill in substance, made into pills with tartarized antimony, opium and calomel. None of the liquid preparations retain the full activity of the substance.

SECALE CORNUTUM.

*Spurred Rye. Called Ergot.**

ORIGIN. Various species of grain and grasses are subject to a morbid excrescence on some part of the ear or spike, to which the French name *ergot* has been applied. Rye is more frequently affected with this appendage than any other grain. Different conjectures have been offered relative to the nature of this excrescence, the most probable of which is that of Decandolle, who considers the ergot to be a parasitic vegetable, of the tribe of *fungi* and genus *sclerotium*.

QUALITIES. Ergot resembles a grain of rye elongated to several times the common length, of an irregular form, and a dark colour. It has a light and brittle texture, and an unpleasant taste. According to Vauquelin, it contains a pale yellow colour-

* See a memoir on ergot, by the author, in the New England Medical Journal, Vol. V. p. 156, reprinted in Brande's Journal of the Royal Institution, Vol. II.

ing matter ; an oily matter ; a violet colouring matter ; an acid, probably phosphoric ; and a vegeto-animal matter.

EFFECTS AND USES. This substance was formerly suspected of producing certain epidemic diseases—the dry gangrene and raphania—but the suspicion was probably unfounded. In regard to its immediate effect on the system, the reports of medical authors differ widely, some considering it highly deleterious. From my own observations, I have found that it produces nausea and vomiting in doses of from a scruple to a drachm ; that it seldom operates upon the bowels ; and that large doses produce head-ache and temporary febrile symptoms. It has very little acrimony, and does not prove sternutatory when snuffed up the nostrils.

Besides these more general effects, ergot has a specific power of stimulating the uterus during the process of parturition, in a manner which is not known to be produced by any other medicinal agent. This effect is wholly unequivocal, and cannot be confounded with the common uterine efforts. It is moreover certain, or at least its failures are not more frequent than those of any of our most common operative drugs. This operation consists in a powerful, incessant and unremitting contraction of the uterus, not alternating with intervals of ease, as in common labour, but continuing without remission until the child is expelled. When ergot is prematurely or injudiciously administered, the child does not breathe at birth, is difficult to resuscitate, and is sometimes irrecoverably dead. This effect has been attributed to a poisonous quality in the ergot, but is obviously the consequence, simply, of long-continued and unremitting pressure on the child, a fact pointed out in the *New England Journal* as early as 1812.

A few medical writers, principally in Europe, in consequence, probably, of not being furnished with the genuine article in an unimpaired state ; have doubted the power of ergot to affect or alter the action of the uterus. But I may safely assert, that after fifteen years, during which this drug has attracted notice among us, there is scarcely an article of the *Materia Medica*, upon the character of which the minds of the profession in this country are

more fully made up than upon this. Indeed, our Medical Journals and books of *Materia Medica* have teemed with evidences of its activity.

For obvious reasons, ergot should never be given in natural and favorable cases of labour. It is strongly contraindicated, at all times, by earliness of the stage, rigidity of the soft parts, any unfavorable conformation, or any presentation which requires changing. It is admissible in lingering cases, after the head has reached the os externum, when it is ascertained that the delay arises from deficient uterine action, and not from mechanical obstruction. It is also admissible in the case of children ascertained to be dead, and in lingering cases of abortion. It is useful in cases of retained placenta; and, from its power of causing contraction of the uterus, it arrests flooding after delivery. In females habitually subject to profuse hemorrhage at this period, there is perhaps no better preventive than a full dose of ergot administered just before delivery. Its efficacy has been repeatedly attested.

Spurred rye has been administered as an emmenagogue with various success. Its action on the unimpregnated uterus is much less than it displays in labour, yet the result of many trials has been, on the whole, in favour of its emmenagogue power.

EXHIBITION. Ergot is commonly given in powder, boiled or infused in hot water. A drachm may be prepared in this way for a puerperal patient, and one quarter of the mixture, while turbid, given every twenty minutes till its effect becomes perceptible. In amenorrhœa, ten or fifteen grains may be given three times a day, and increased, if nausea does not ensue.

SENEGA.

Seneca Snake Root.

ORIGIN. This article is the root of the *Polygala senega*, a plant growing wild in most latitudes of the United States, especially in mountainous tracts.

QUALITIES. It has an unpleasant, and somewhat acid taste. After chewing, it leaves a sensation of acrimony in the mouth, and still more in the fauces, if it has been swallowed. These properties it communicates fully to boiling water. The process of decoction does not appear to dissipate any of its power, since the distilled water is destitute of the taste and smell of the plant. Alcohol dissolves a resinous substance, which is afterwards precipitated by water.

USES. Senega is sudorific and expectorant in small doses, and emetic and cathartic in large ones. In the advanced stages of pulmonary inflammation, after venesection and blistering have been carried to their proper extent, and farther depletion is contraindicated, this medicine frequently assists in promoting the solution of the disease. It is injurious, however, from its stimulating properties, if given at too early a stage. Senega is commended in asthma, particularly that of middle-aged and elderly people, which approaches in character towards peripneumonia notha. In croup it has also been celebrated, but can properly be considered only as a secondary remedy. Incipient and slight cases of croup are often relieved by vomiting; graver cases require copious bloodletting at an early stage; and it would be injurious to delay these means for the sake of a remedy, the stimulating properties of which render its appropriateness at least questionable. In the late stages of croup, however, there is very respectable authority in support of its usefulness. Senega, if persevered with in as large doses as the stomach will bear, has in some instances dissipated dropsical swellings. In rheumatism it is a successful remedy, if given in doses sufficiently large to vomit and purge. It is likewise recommended in amenorrhœa, in full but not operative doses, persevered in for some time, particularly at the expected return of the catamenia.

EXHIBITION. The most common mode of exhibiting this medicine is that of the *decoction*; which see. It is sometimes, also, given in substance, in *doses* of from one to two scruples.

SENNÆ.*Senna.*

ORIGIN. This useful drug is the dried leaves of one or more species of cassia, imported from Egypt, Arabia and India. The Alexandrian senna, which we are instructed by most books to consider as best, is the product of the *Cassia senna* of Linnæus, called *C. lanceolata*, by Lamarck. The India senna has a somewhat narrower leaf, but whether it be a variety of the above plant, or a co-species, I am not able to say. According to M. Nectoux,* the Alexandrian senna, which grows in upper Egypt, is adulterated at Boulac, the principal entrepôt, with one or two other species of cassia, and also with the leaves of *Cynanchum oleifolium*, a very different plant, called by the Egyptians *Arguel*. Dr. Calloden of Geneva states, that 500 parts of lance-leaved senna are mixed with 200 of obovate senna and 200 of Arguel. In the United States the greater part of the senna consumed is imported from the East Indies. The India senna is one of the most valuable kinds, and its freedom from adulteration entitles it, in one respect at least, to the preference.

QUALITIES. The common India senna has an acute, lanceolate leaf, and petioles, without glands, bearing from five to nine pairs of leaves. Alexandria senna has a shorter and more oval leaf, and is commonly mixed with a certain proportion of a different leaf, which is thicker, firmer, and more nauseous and bitter. Senna has a faint, sickly odour, and a sweetish, bitter, disagreeable taste. Boiling water dissolves about one third part of the weight of the leaves, and acquires a dark-brown colour. Alcohol also extracts the active properties of the drug. The active principle, according to Mr. Thomson, resides in a very oxydizable extractive resin, and a peculiar volatile matter. The

* See Tilloch's Magazine, XV. 55. See also American Medical Botany, II. 167. Note.

plant contains, also, mucus and some saline ingredients. The French chemists have separated from senna a peculiar substance, which they denominate *cathartine*, and which is said to purge in very small doses. It is uncrystallizable, of a reddish-yellow colour, bitter and nauseous, very soluble in water and alcohol, but insoluble in ether.

USES. Senna is a speedy and sure cathartic, deservedly held in high estimation. Dr. Fordyce, speaking of it, says, "As far as I can judge from experience, *it* is the most certain stimulus to the intestines in producing purging, of any substance which I have ever tried." In an irritable state of the stomach, when other medicines are rejected by vomiting, a persevering use of small doses of senna, repeated every half hour, often operates sooner and with less inconvenience than any other purgative. The property ascribed to senna, of occasioning griping by its operation, I have not observed to appear more frequently than in other resinous cathartics; nor is it more difficult to obviate.

EXHIBITION. Senna is best administered in infusion. An ounce of the leaves saturates a pint of hot water, if macerated for an hour in a warm place. Longer maceration is supposed to occasion chemical changes in the senna, unfavorable to its salutary operation. Of the infusion thus prepared, four fluidounces are a *dose*; but in obstinate costiveness, half, or the whole pint may be given. When a tendency to vomiting exists, one or two spoonfuls may be repeated every half hour, until an operation takes place. Senna is often combined with manna, to render it more palatable and effectual. The purgative salts form excellent additions, both to increase the ease and activity of its operation. With a view to prevent griping, the infusion should be taken soon after it is made, and some aromatic substance combined with it. (See the different *Infusions* of senna.) The cathartic *tinctures* are serviceable adjuncts on this account. Senna is seldom given in decoction, or in substance, though two or three scruples of the powder will operate.

SERPENTARIA.*Virginia Snake Root.*

ORIGIN. The *Aristolochia serpentaria*, which affords this root, is a native of the middle and southern parts of the United States, commonly growing in woods. It is a small plant, with an obscure, tubular, contorted flower, growing close to the ground.

QUALITIES. The dried root consists of bundles of fibres matted together, having a penetrating, resinous and rather agreeable smell, and a pungent, bitter taste, somewhat resembling that of *Pinus Canadensis*, or hemlock spruce. It communicates its qualities to both water and alcohol, but most to the latter. On distillation, a white, pearly fluid collects in the receiver, very strongly impregnated with the aroma, but less bitter than the root. This fluid, on standing, deposits round the edges of its surface, small crystals of camphor. Serpentaria is also said to contain a volatile oil and resin, and has probably a bitter extractive matter.

USES. Serpentaria is a tonic and diaphoretic, and in certain cases an antispasmodic and anodyne. It is employed with advantage in the low stages of fevers to support the strength and allay irregular actions. It is injurious if too early employed. In many cases it proves a very useful auxiliary to Peruvian bark, and, even in intermittents, has been thought to enhance its efficacy. Snake root is a popular remedy in exanthematous disorders, being given to keep out the eruption, and to restore it when it has receded. It is, however, too stimulating to be used with propriety, and in many cases rather aggravates than relieves the disease.

EXHIBITION. This root is most advantageously given in the *infusion*; which see. Decoction is a less proper form, as it dissipates the volatile parts of the medicine, much of which the infusion retains in a state of mixture. Sometimes the powder is given in *doses* of from ten to thirty grains.

SESAMI OLEUM.

Benne Oil.

The *Sesamun orientale* is cultivated in Asia, Africa, and the West Indies, principally on account of its oil. Its seeds were used by the ancient Egyptians for food, and are still employed by the negroes and Asiatics for this purpose. The plant is now cultivated in the southern parts of the United States. The seeds afford a copious quantity of oil, amounting, according to some authors, to one quarter, and, according to others, to nearly one half of their weight. This oil is bland, sweet, and is said to keep for some years without turning rancid. It is applicable to the same purposes as olive oil, and, in sufficient dose, proves purgative on the same principle as other animal and vegetable fixed oils. See *Adeps*, &c.

SEVUM.

Suet.

The fat of ruminating animals has a solid, brittle consistence at common temperatures, and is somewhat less fusible than that of other quadrupeds. It has received the names of *suet* and *tallow*. Except in the above qualities, it resembles *lard* in its general character. It is used in pharmacy to give consistence to ointments and plasters, mutton suet being preferred to the other kinds.

SIMAROUBA.

Simarouba.

Simarouba is the bark of the root of a species of *Quassia*, called in Jamaica *mountain damson*. The wood of this tree is inert.

Simarouba bark is a pure and not disagreeable bitter. It comes in pieces of a fibrous texture, rough, scaly and warty, with a yellowish inside. Cold water and alcohol take up all its active matter by maceration. According to M. Morin, simarouba contains a resinous matter; a volatile oil; malic acid, and traces of gallic; quassin, and a variety of salts; together with ulmin and ligneous matter.

This bark is tonic, and has been employed in intermittent fever, in dyspepsia, and in chronic diarrhœa, and the secondary stage of dysentery. A scruple or two may be given in powder; but a more useful form is an infusion, resembling that of quassia in its strength and *dose*. Cold water may be used in its preparation.

SINAPIS.

Mustard.

ORIGIN. Common mustard, though a foreign plant, is naturalized, and grows plentifully in cultivated grounds in the United States. The seeds, reduced to powder, and mixed with water, are a well-known condiment with food.

QUALITIES. The seeds, when bruised, have a pungent odour and a strong, biting taste. The acrimony is communicated to water more than to alcohol, and rises in distillation. The constituents, according to Thomson and Paris, are *fæcula*, mucus, a bland fixed oil, an acrid volatile oil, on which the properties depend, sulphur, and an ammoniacal salt.—Query. Is not the *fæcula albumen*? and, if the acrid principle be a volatile oil, how is it more communicable to water than to alcohol?

USES. Mustard is stimulant and diuretic, and, in large doses, emetic. Its principal use, however, is as a rubefacient, externally applied.

EXHIBITION. Mustard should always be employed in powder, since the whole seeds do not readily give out their virtues. A large teaspoonful is said to operate as an emetic, smaller doses

as a diuretic. Mustard poultices, or *sinapisms*, should be formed by preparing a cataplasm of meal and vinegar, which, when spread for application, should be covered, on its surface only, with powdered mustard. This prevents waste, and secures the whole rubefacient action of the mustard.

SODÆ SUBCARBONAS.

Subcarbonate of Soda.

ORIGIN. Subcarbonate of soda is found native in Egypt and some other countries, where it is known by the name of *natron*; but it is most frequently procured from maritime plants by incineration and lixiviation; as subcarbonate of potass is procured from other vegetables. The ashes of common sea-weed, known in commerce by the name of *kelp*, furnish a small percentage of this substance. But the principal supply is obtained from the *Salsola soda*, a plant of the salt marshes in the south of Europe, which, in Spain and some other countries, is cultivated for the purpose. This plant is pulled up when the seed is ripe, and, after drying, is burnt in furnaces, the heat of which is just sufficient to cause the ashes to enter into a state of semifusion, and to concrete into cellular masses, which form the *barilla* of commerce.

Pure subcarbonate of soda is obtained from the *barilla* above mentioned by bruising it, and boiling it in water until all the saline matter is dissolved. The solution is then filtered and evaporated in iron vessels so far that, upon cooling, crystals may form. As *barilla* contains not only subcarbonate of soda, but likewise sulphate and muriate of soda, charcoal, lime, magnesia, clay and silex; these processes are necessary for obtaining the pure salt. The earths being insoluble, are separated by the solution and filtration, while the foreign salts remain dissolved in the residuary liquor, after the subcarbonate of soda has crystallized.

Pure subcarbonate of soda is also manufactured in large quantities by decomposing the sulphate of soda, and the muriate of soda. In a process of Scheele, muriate of soda is decomposed by red oxide of lead, or litharge, a subcarbonate of soda and muriate of lead being obtained. But more frequently the sulphate of soda is decomposed to produce this salt, either by charcoal, or by common subcarbonate of potass.

QUALITIES. Pure subcarbonate of soda has a mild, alkaline taste, and changes vegetable blues to green. It crystallizes in octohedrons, truncated at the summits of the pyramids; it effloresces when exposed to the air, and undergoes watery fusion at 150° Fahrenheit. It is *soluble* in two parts of water at 60°, and in less than its weight of boiling water.

USES. The most important use of this salt is as an alkaline remedy, employed in dyspepsia and acidity of the stomach. It is more convenient than the subcarbonate of potass, being less acrid to the taste, and more easy to preserve for occasional use in consequence of its not being deliquescent. It is applicable to the same calculous affections, for which magnesia and potass are resorted to.

EXHIBITION. From ten grains to a drachm constitute a *dose*; but the next following preparation affords a more convenient form for the same medicine.

SODÆ SUBCARBONAS EXSICCATUS.

Dried Subcarbonate of Soda.

Subcarbonate of soda, deprived of its water of crystallization by drying, becomes more active in an equal weight, without otherwise changing its properties. In this state, it may be made into pills; whereas pills of the crystallized subcarbonate fall to pieces as soon as the salt effloresces. In dyspeptic cases it is usefully combined with bitter and tonic powders. *Dose*, from ten to twenty-five grains, three times a day.

SODÆ CARBONAS.

Carbonate of Soda.

PREPARATION. See Pharmacopœia, p. 198. According to the views of Dr. Wollaston, this salt is a *bi-carbonate*, the preceding being a *carbonate*. Both, however, are alkaline, the carbonate of the present article being hardly neutralized with acid. The formula of the American Pharmacopœia is the same as that of the London College, in which Mr. Phillips thinks the proportion of subcarbonate of ammonia employed somewhat too large. The Edinburgh College direct this article to be made by passing carbonic acid gas through a solution of subcarbonate of soda, till it ceases to be absorbed.

QUALITIES. It forms an irregular, saline mass, which, according to Dr. Ure, is not crystallized. The taste is somewhat more mild than that of the subcarbonate.

USES. It is applicable to the same purposes as the subcarbonate of soda and carbonate of potass.

SODÆ SUBBORAS.

Subborate of Soda. Called Borax.

ORIGIN. Borax is a natural salt found in Persia and Thibet, where it is collected in an impure state about the borders of certain lakes. It is purified by calcination, solution and crystallization.

QUALITIES. Its crystals are irregular, hexaedral prisms, slightly efflorescent, with a cool, styptic, alkaliescent taste. It is *soluble* in twenty parts of cold water, and in six of boiling water.

USES. Borax is seldom used internally, but is employed as an astringent topical remedy, mixed in powder with eight or

ten parts of honey, in cases of aphthæ and ulcerated sore throat.

SODÆ MURIAS.

Muriate of Soda. Called Sea Salt.

ORIGIN. Common sea salt, which, according to the views of Sir H. Davy, is a *chloride of sodium*, is one of the most abundant productions in nature. Besides its well-known presence in the waters of the ocean, it impregnates mineral springs and lakes, and is found in vast solid strata under the surface of the ground. It is commonly in a state of mixture with various other substances, and requires to undergo different processes of purification, before it constitutes the article of commerce.

Sea water contains about one twenty-fourth part of muriate of soda. Within the tropics it is somewhat stronger. Salt springs frequently contain a much greater quantity, and in some instances have been found nearly saturated. Salt is obtained from these waters by evaporation and crystallization. Where fuel is plenty, the evaporation is often conducted by boiling, but on the sea shore it is more frequently a spontaneous process. At the salt works in Massachusetts, which have now become very extensive, the sea water is pumped up by windmills into large wooden vats, where it is left to evaporate by the sun's heat, the vats being covered in rainy weather by moveable roofs. After the crystals are deposited, they are raked out from the bottoms of the vats and dried. In warm and dry climates, the evaporation is frequently carried on in artificial ponds. Muriate of soda obtained by evaporation, is seldom pure, but commonly mixed with earthy and deliquescent salts, which dispose it to attract moisture from the atmosphere. An expensive mode of purifying it has been adopted in Scotland, by washing it with a hot, saturated solution of muriate of soda, which dissolves the foreign salts, but produces no effect on the salt to be purified.

QUALITIES. Muriate of soda has a strictly salt taste, which, in a certain degree, is universally agreeable to men and animals. It crystallizes in regular cubes, and, when pure, is free from bitterness, and does not deliquesce in the air. It is almost equally *soluble* in hot and cold water, requiring less than three parts of either for its solution. By the action of heat it first decrepitates; then melts; and lastly, if the heat be intense, sublimes without decomposition. It is decomposed by the sulphuric and nitric acids, and by potass and baryta. According to Kirwan, it contains muriatic acid 38.88—soda 53—water 8.12. By Davy's theory, the dried salt contains about 22 of sodium and 33.5 of chlorine.

USES. Common salt is tonic and antiseptic. In small quantities it promotes appetite and digestion, and in larger ones is purgative. It has also some reputation as an anthelmintic, particularly when given in the form of an enema for ascarides, in which case it forms one of the most effectual palliatives known. It is preferred to all other agents as a preservative for animal matter from decomposition.

SODÆ MURIAS EXSICCATUS.

Dried Muriate of Soda.

This substance is used in making oxymuriate of mercury, and muriate of antimony. It is also employed by the distillers of muriatic acid.

SODÆ SULPHAS.

Sulphate of Soda. Called Glauber's Salt.

ORIGIN. Sulphate of soda is made in Europe from the saline residuum, which remains after several chemical processes, particu-

larly after the distillation of muriatic acid from muriate of soda and sulphuric acid. In this country, large quantities are made at marine salt works from the bitter water, which remains after the crystallization of sea salt.

QUALITIES. Sulphate of soda crystallizes in long, six-sided prisms, with dihedral summits, the sides of which are grooved. The taste is salt and bitter. Exposed to the air it effloresces rapidly, and soon falls to powder. It is very *soluble* in water, requiring less than three times its weight of cold water, and only eight tenths of its weight of boiling water. When heated it undergoes watery fusion, and at a strong heat is partly decomposed. It contains, according to Berzelius, of acid 24.64—alkali 19.36—water 56.

USES. Sulphate of soda is one of the most common and useful of the saline cathartics. In common with the other neutral salts used as purgatives, it evacuates the bowels speedily, effectually, and without heat, pain or inconvenience. The satisfactory operation of these salts might cause them to supersede many of the stronger cathartics, were it not for the quantity requisite for a dose, and the disagreeable taste which they all possess.

EXHIBITION. An ounce is a medium *dose*. If the salt has fallen to powder by efflorescence, it is twice as strong in the same weight, and only half the quantity is necessary for a dose. It is more conveniently taken if dissolved in as little water as possible, but operates better if dissolved in a good deal. Brandy, previously held in the mouth, will prevent the taste of the salt.

SODÆ PHOSPHAS.

Phosphate of Soda.

QUALITIES. It crystallizes in large, regular, transparent, rhomboidal prisms, with a simply saline taste. It is somewhat efflorescent, and *dissolves* in three parts of cold and one and a half of hot water. It may be fused into an opaque, white glass.

USES. These are the same as those of the sulphate of soda.

EXHIBITION. An ounce is an operative *dose*. It was introduced into practice by Dr. George Pearson of London as a pleasant substitute for the other neutral salts, its taste being less disagreeable; so that it may be taken in broth or gruel in sufficient quantities to operate, without becoming unpleasant. In this way it is taken by children, in a dose proportionate to their age.

SOLIDAGO.

Golden Rod.

The American sweet-scented golden rod has an extremely pleasant odour and taste, resembling that of anise, and residing in a volatile oil. This oil, on which the chief medicinal effects of the plant depend, is stimulant, carminative and diaphoretic. Water extracts the efficacy of this plant less perfectly than spirit; yet an infusion is a popular diaphoretic in many parts of the country where the plant grows. The tincture is a fine aromatic.

SPERMACETI.

Spermaceti.

ORIGIN. The head of the *Physeter macrocephalus*, or spermaceti whale, contains a spongy, oily mass, which, when purified by draining it from oil, pressing, melting and washing, forms the spermaceti of commerce.

QUALITIES. Purified spermaceti is a peculiar substance, intermediate between tallow and wax. It is white, crystallized, friable, semitransparent, unctuous and nearly insipid. It melts at 112°. It is *soluble* in hot alcohol, ether, and oil of turpentine; but concretes again as the fluids cool. It is completely soluble

in fixed oils. When rancid from long exposure to the air, it may be purified by washing it with a warm ley of potash.

USES. It is emollient and demulcent. It is sometimes employed with the latter view in dysentery and catarrh; but its principal use is in the formation of ointments.



SPIGELIA.

Carolina Pink.

ORIGIN. This is a native plant, found in all the southern parts of the United States. Though the root is most powerful, yet the whole plant is sold in our shops.

QUALITIES. Carolina pink is a very mild, mucilaginous plant, imparting its virtues fully to water. Its sensible properties are not such as to indicate great activity.

USES. The medical reputation of this plant is founded on the powers, which it is supposed to possess as a vermifuge. This reputation is now so generally established, that the plant has become an article of commerce to various parts of the world from our southern states. This is a sufficient evidence that the medicine has, to a certain extent, satisfied public expectation, and obtained the sanction of practitioners. But there are few classes of medicines more uncertain than specific anthelmintics. They are frequently prescribed without positive proof of the existence of the cause they are intended to remove; they often fail altogether in the hands of the best practitioners; they frequently succeed merely because they are backed by active cathartics; and sometimes, as in fever and dysentery, the expulsion of worms is the consequence solely of a diseased state of body. The spigelia is considered more active in its newly dried state, than after it is six months old. Good spigelia produces slight narcotic effects, in a full dose.

EXHIBITION. Of the powder, ten grains may be given at once to a child four years old, and a drachm to an adult. But the most common form of administration is the *infusion*; which see.

SPIRÆA.

Hardhack.

The *Spiræa tomentosa* is a common, native shrub, abounding particularly in the northern states. Its root and leaves are highly astringent, and contain tannin in abundance. They have been advantageously used in various discharges from debility, and particularly in hemorrhage from the bowels.

SPIRITUS.

Spirits.

The preparations denominated *Spirits* in the American Pharmacopœia are solutions of the volatile parts of vegetables in alcohol or spirit, obtained by distilling the menstruum off of the vegetable substance.

SPIRITUS JUNIPERI COMPOSITUS. *Compound Spirit of Juniper.*—The product here of the distillation is diluted alcohol impregnated with several volatile oils. It is added to other diuretics in dropsy, in the *dose* of about a fluidounce; but is too stimulating for all cases.

SPIRITUS LAVANDULÆ. *Spirit of Lavender.*—This is vulgarly known by the name of *white lavender*, in distinction from *red lavender*, which is the *tincture*. It is chiefly used as a perfume, but is occasionally taken as a cordial, in *doses* of one or two fluidrachms.

SPIRITUS ROSMARINI. *Spirit of Rosemary.*—This resembles the last article in its properties and application. Both are

transparent, alcoholic solutions of the volatile oil of the plants from which they are prepared.

SPONGIA.

Sponge.

Common sponge is a zoophyte found in the Mediterranean and Red Seas, attached to the rocks at the bottom. Its chemical constituents, according to Mr. Hatchett, are gelatin, albumen, and small portions of muriate of soda and carbonate of lime. It is useful in surgery, but is not employed in medicine, except in the following preparation.

SPONGIA USTA.

Burnt Sponge.

This probably has no activity beyond that of the subcarbonate of soda, and charcoal, which it contains. It is however believed by some to possess peculiar efficacy in bronchocele, scrofula and herpes. *Dose*, from one to three drachms, in honey.

STANNUM.

Tin.

Tin is a rare metal, in regard to the extent of its distribution, though it exists abundantly in certain localities, particularly at Cornwall in England. It is found, in its metallic state, united with sulphur and copper; also oxidized, in combination with oxide of

iron and silex. Tin is less white than silver, and is brighter and harder than lead. It bends easily, with a peculiar, crackling noise. Its specific gravity is 7.29; its fusing point about 442° Fahrenheit. By exposure to the atmosphere it becomes tarnished, but is hardly oxidized at any low temperature.

PULVIS STANNI.

Powder of Tin.

This powder is used as an anthelmintic in tænia; and I have known cases of its successful operation. It is commonly supposed to act mechanically; but it has been suggested, that the hydrogen gas generated in the alimentary canal may be the cause of its efficacy. *Dose*, a drachm or two in treacle, for three successive mornings; to be followed by a strong cathartic. Dr. Alston directs an ounce for the first dose.

PULVIS STANNI AMALGAMATIS.

Powder of the Amalgam of Tin.

The amalgam of tin is considered an active anthelmintic in cases of lumbrici. It is not apt to salivate, and may be given, in *doses* of a scruple, for a considerable time, in any convenient vehicle. *Pharmacopœia*, p. 204.

STATICE.

Marsh Rosemary.

The *Statice Caroliniana*, which closely resembles the *S. limonium* of Europe, grows plentifully on salt marshes throughout the

United States. The root is intensely astringent to the taste, and abounds in tannin and gallic acid.

USES. Large quantities are sold in the druggists' shops, the root being a popular remedy in aphthæ and ulcerative sore throats. Its astringent and antiseptic properties render it peculiarly suitable as a topical application in these complaints. It is no doubt entitled to rank in point of strength with any of the imported vegetable astringents. It may be employed in infusion or decoction.

STRAMONIUM.

Thorn Apple.

ORIGIN. The *Datura stramonium*, called in some places *Apple of Peru*, and *Jamestown weed*, grows wild in most parts of the United States, and also in Europe. It has two varieties—the purple-flowering, and the white, which are equally efficacious in medicine.

QUALITIES. The whole plant has a heavy, disagreeable odour, and a nauseous taste. Water and alcohol dissolve its active constituents, which appear to be of the extractive kind. Water distilled from the plant retains the sensible qualities in a slight degree, but does not seem to possess much of the medicinal powers. A vegetable alkali, *Daturia*, has been obtained from the seeds of this plant, in which it exists combined with malic acid. It is nearly insoluble in water and cold alcohol, but is soluble in hot alcohol, from which it precipitates, on cooling, in flocculi. It crystallizes with difficulty in quadrangular needles, and neutralizes acids, if added to them in large quantity, forming salts.

USES. Stramonium is a powerful narcotic, capable of acting in small quantities as an anodyne and antispasmodic; and in large ones as a poison. When swallowed, it produces nausea and dizziness, even in small doses; but if the quantity be large, it brings on great prostration of strength, loss of muscular power,

insensibility of the retina, occasioning dilated pupil, tremors, head-ache, delirium; and sometimes convulsions, coma and death. If not fatal, the effects wear off in a day or two. Patients should be treated in the same way as if poisoned by opium.

In various diseases of the chronic kind, stramonium has been resorted to with advantage. It has been found serviceable in those kinds of epilepsy, in which the fits give warning of their approach, or occur at regular intervals. In tic douloureux it has afforded decided relief. Dr. Marcet of London states, as the result of his experience, that this medicine has done more to lessen the violent pain of several chronic diseases than any other narcotic substance. The effects in these cases were, to lessen, powerfully and almost immediately, sensibility and pain; to occasion a sort of nervous shock, frequently attended with a momentary affection of the head and eyes; to excite some nausea, and phenomena like those of intoxication; to produce sometimes in the throat a sense like suffocation; to relax rather than constipate the bowels; and to exert little soporific effect, excepting that produced by the succession of ease after pain. He employed it in sciatica, in tic douloureux, in cancer, &c. It was most effectual in sciatica combined with syphilis.

The leaves of stramonium, used by smoking, in the same way as tobacco, have been found of great use in the paroxysms of spasmodic asthma. It is less effectual in the asthma of plethoric or intemperate people, or where the disease is symptomatic, depending on causes in the stomach and bowels, which require to be removed. It is used during the paroxysm only, and has no prophylactic power.

EXHIBITION. The powdered leaves are sometimes given in doses of a grain; but the *extract* is to be preferred; which see. If the commencing dose excites no nausea nor vertigo, we may repeat the medicine three times a day, gradually increasing the quantity, till these effects are felt by the patient, or relief of the disease is obtained. For external use, the fresh leaves, bruised, form an excellent anodyne application in painful tumors. The ointment is also much esteemed. See *Unguentum stramonii*.

STRAMONII SEMINA. *Thorn Apple Seeds*.—The seeds of thorn apple are considered more powerful than the rest of the plant, and may be given in half or two thirds of the dose.

SUCCINUM.

Amber.

Amber is apparently a substance of vegetable origin, which is cast ashore in lumps from the sea, principally in the Baltic. It is also dug out of the earth near the sea coast.

QUALITIES. It is hard, brittle, light and transparent, sometimes colourless, but commonly yellow or brown. It is also electric. When heated it emits a fragrant odour, but is inodorous and insipid when cold. The specific gravity is 1.065. It softens when heated, and burns out in a high temperature with little residuum. It is slightly *soluble* in water, but alcohol takes up one eighth part. Its principal constituents appear to be resin, an empyreumatic oil, and a peculiar acid, called the *succinic*.

USES. At the present day it is not considered medicinal, but is retained to afford the *Oil of amber*, and *Oxidated oil of amber*.

SULPHUR.

Sulphur.

ORIGIN. Sulphur is found native in the vicinity of volcanoes; also imbedded in strata of limestone and gypsum, and forming veins in primitive rocks. It also forms a part of various minerals, and is often obtained from pyrites, or sulphurets of iron and copper. It is separated by roasting these ores, and collecting the sulphur which sublimes. This is afterwards cast into moulds, and forms the *roll sulphur* and *loaf sulphur* of com-

merce. The sulphur of Sicily is considered as most pure, that obtained in England having frequently a fifteenth part of orpiment, or sulphuret of arsenic. For medical purposes the sublimed sulphur only is to be used, which is prepared by heating in a sand bath an earthen cucurbit charged with roll sulphur, and collecting the vapours in aludels placed round it, where they concreate.

QUALITIES. Sulphur is ranked among simple elementary substances, though it has been conjectured to be a triple compound of oxygen, hydrogen and some unknown base.* Sublimed sulphur is a bright yellow powder, which, when microscopically examined, appears of a crystalline texture. It contains a small portion of acid, from which it is separated by washing with water. Sulphur is volatilized by a heat exceeding 180° Fahrenheit, giving out a peculiar, unpleasant odour. At 220°, it melts;† at 320°, in close vessels, it becomes thick and viscid, and the temperature augments to 550°. In the open air it inflames at 300°, and burns with a pale-blue flame, emitting acid, suffocating vapours. It is insoluble in water, slightly soluble in alcohol and ether, and readily soluble in oils. It unites with oxygen, forming acids; and with alkalis, earths and metals, forming sulphurets.

USES. Sulphur is a mild and useful cathartic, possessing also diaphoretic powers. It is particularly prized in hemorrhoidal affections, in which it obviates costiveness without aggravating the disease, as more stimulating purgatives are liable to do. As a diaphoretic and stimulant, it is employed in chronic rheumatism, catarrh and asthma. In the cutaneous diseases of children, it is a common and popular remedy. It is in many cases an effectual vermifuge. Sulphur, when taken internally, transpires through the pores, apparently in the state of sulphuretted hydrogen, so as to blacken silver in the pockets of those who take it. Externally applied, it cures *psora*, and some other cutaneous diseases.

* Davy, Philosophical Transactions, 1809. This opinion is now considered doubtful.

† Ure.

EXHIBITION. From one to three drachms may be given mixed with treacle, syrup or milk. In hemorrhoids, it is often combined with magnesia ; and in cutaneous diseases, with supertartrate of potass. Externally the *ointment* is used ; which see. Bathing in sulphureous mineral waters is often found superior to other modes of applying sulphur, in diseases of the skin.

SULPHURETUM POTASSÆ.

Sulphuret of Potass.

PREPARATION. See Pharmacopœia, p. 206. In preparing this article, the heat should be gradually and cautiously applied, lest the sudden disengagement of the carbonic acid should throw the melted matter out of the crucible. Mr. Thomson thinks that in order to render the combination complete, the subcarbonate of potass should first be prepared by exposing it in a crucible to a red heat, so that its water and some of its carbonic acid may be driven off. This substance was formerly known by the name of *Hepar sulphuris*, or *liver of sulphur*.

QUALITIES. When well prepared, it is inodorous while dry, but if moistened or dissolved in water, a partial decomposition, both of the water and the sulphuret, is effected, and it emits the fetid odour of sulphuretted hydrogen. It has an acrid, bitter taste ; turns vegetable blues to green ; is hard, brittle with a glassy fracture ; has a dark liver colour, and stains the skin. By solution in water, or exposure till it attracts moisture from the air, it is changed into an hydroguretted sulphuret of potass, with a small portion of sulphate of potass.

USES. It presents a form of sulphur, which is *soluble* in water, and which has been found efficacious in psora and other cutaneous affections, both externally and internally applied. It has had also a share of reputation in rheumatism and gout. It is hypothetically recommended as an antidote for metallic poisons, on account of the facility with which it decomposes those substances

out of the body. I am informed on respectable authority, that hooping cough is abridged by its use.

EXHIBITION. From three to ten grains may be taken at a dose, made into pills with soap.

SULPHURETUM SODÆ.

Sulphuret of Soda.

This article resembles the preceding in most of its characteristics and uses.

SYRUP.

Syrups.

Syrups are liquid preparations, in which sugar is dissolved. They will keep for a considerable time unaltered, provided the weight of sugar dissolved is about twice that of the fluid. If syrups are made too thin, they are apt to ferment; if too thick, the sugar is liable to crystallize. They should be kept in cellars or cool situations.

SYRUPUS ACETI. *Syrup of Vinegar.*—This is chiefly used to give flavour to other medicines. It is very liable to decomposition.

SYRUPUS ALLII. *Syrup of Garlic.*—This is diuretic and expectorant in diseases of the pulmonary mucous membrane. *Dose*, two or three fluidrachms.

SYRUPUS AURANTII CORTICIS. *Syrup of Orange Peel.*—This syrup is a pleasant vehicle for other medicines. As the volatile oil resides in little vesicles on the outer surface of the

rind, the strength of the syrup is much promoted by the division of these vesicles in the manner directed.

SYRUPUS COLCHICI. *Syrup of Meadow Saffron.*—This syrup has formerly been in repute, particularly as a diuretic; but of late it is nearly superseded by more active forms of exhibiting the medicine. *Dose*, a drachm or two.

SYRUPUS RHAMNI. *Syrup of Buckthorn.*—This is a heating cathartic, attended in its operation with thirst and griping. It is not often imported from England, and its place is frequently supplied in this country by a syrup bearing the same name, but made from the berries of different species of *Cratægus*. The *dose* of *Syrup of buckthorn* is about a fluidounce for adults, and a fluidrachm for young children.

SYRUPUS RHEI. *Syrup of Rhubarb.*—This contains the properties of rhubarb, which are soluble in water, and may be given to children in a *dose* of one or two fluidrachms.

SYRUPUS RHEI AROMATICUS. *Aromatic Syrup of Rhubarb.*—This appears to be a warm stomachic and purgative, of which the *dose* may be about a fluidounce.

SYRUPUS RHEI CUM SENNA. *Syrup of Rhubarb with Senna.*—This syrup is suited for children, about a fluidrachm being taken for a *dose*. It is probable that the activity of the senna may be somewhat impaired by the evaporation.

SYRUPUS SARSAPARILLÆ. *Syrup of Sarsaparilla.*—This is a decoction of sarsaparilla with various other ingredients, apparently adapted for keeping by the addition of sugar and honey. It seems calculated for syphilitic rheumatism, &c. in *doses* of half a pint. See the next article.

SYRUPUS SARSAPARILLÆ ET GUAIACI. *Syrup of Sarsaparilla and Guaiacum.* This seems adapted to the same purposes as the

foregoing, but is more stimulating. It must be confessed, however, that it is somewhat difficult to take enough of so bulky a preparation to experience benefit from its medicinal contents, without, at the same time, overloading the stomach with honey and sugar. The directions given for this and the preceding article are not sufficiently precise.

SYRUPUS SCILLÆ. *Syrup of Squill.*—This preparation, being made without heat, is more certain and uniform in its strength than the *acetated honey* of squill. The *dose*, as an expectorant in catarrh, is about a fluidrachm. This quantity commonly vomits young children.

SYRUPUS SENEGÆ. *Syrup of Seneca Snake Root.*—This syrup is made from a very strong decoction of senega, and may be taken in *doses* of one or two fluidrachms. The quantity of root used is apparently greater than the water requires.

SYRUPUS SIMPLEX. *Simple Syrup.*—Used as an extemporaneous ingredient for sweetening liquids, and as a uniting medium for pills.

SYRUPUS TOLUTANI. *Syrup of Tolu.*—This syrup is very pleasant to the taste, and is a popular ingredient in expectorant mixtures.

SYRUPUS ZINGIBERIS. *Syrup of Ginger.*—This article contains the properties of ginger, but is not much used, except as an adjunct to other medicines.

TABACUM.

Tobacco.

ORIGIN. Tobacco was cultivated by the Indians at the time of the discovery of America, and is now raised in great quanti-

ties in the southern parts of the United States. The plant is annual, and succeeds well in any part of our country, though tobacco raised in warm climates is generally better than that which grows far north. For medical use the dried leaves of the common Virginia tobacco should be preferred.

QUALITIES. Tobacco has a well-known, strong, and to most persons not disagreeable odour. Its taste is bitter and acrid. By the analysis of Vauquelin, it contains, 1.—A large quantity of albuminous matter. 2.—Malate of lime. 3.—Acetic acid. 4.—Nitrate and muriate of potass. 5.—A red matter, soluble in alcohol and water, which swells and boils in the fire. 6.—Muriate of ammonia. 7.—A peculiar, acrid, volatile, colourless substance, soluble in water and alcohol, which gives to prepared tobacco its peculiar character, and has not been found in any other plant. The medicinal activity of tobacco resides in this volatile part; water, alcohol and wine, are therefore adequate solvents for the medicine. Long boiling dissipates its activity, so that the decoction and extract are weak preparations; while the empyreumatic or volatile oil is one of the most deadly poisons known.

USES. Tobacco is used as a luxury and prophylactic, and as a medicine. In the former cases it is not taken internally, but only kept in contact with absorbing surfaces, the substance or the smoke being applied to the mucous lining of the mouth and nares. There is no reason for believing that the moderate use of tobacco shortens life; but its abuse is highly injurious, not only wasting the saliva beyond what can be spared from the purposes of digestion, but bringing on a state of body like that which follows intemperance in other narcotics. In medicine, tobacco is swallowed in small quantities for the relief of diseases. In sufficient dose, it always produces nausea and vertigo, and, if the amount taken be large, it is followed by dangerous symptoms, like those from other narcotics. The volatile, or empyreumatic oil, was found by Mr. Brodie to destroy the life of cats and other animals in the small quantity of *two drops, and even of one*, almost instantly, either by applying it to the tongue, or injecting it into the rectum. Tobacco has been found an active diuretic in

dropsy, and a palliative in dysury, by Drs. Fowler and Ferriar. Its mode of operation is probably analogous to that of digitalis. The tobacco enema, formed by infusing half a drachm of tobacco in half a pint of hot water, is used to facilitate the reduction of strangulated hernia, which end it promotes by its relaxing and prostrating effect, and by its cathartic operation. The use of this injection requires caution, as several lives have been destroyed by too strong an infusion incautiously thrown into the rectum. Tobacco smoke, used as an injection, is very powerful, owing to the activity of the volatile part of the medicine, and the extent to which this vapour may penetrate the intestines. It has been used with success in the cure of locked jaw in the West Indies, but it occasions great distress to the patient. The practice of attempting to resuscitate drowned persons by injections of tobacco smoke, is undoubtedly useless and pernicious. A cataplasm of tobacco, applied to the stomach, or under the axilla, occasions giddiness and vomiting, and has been recommended to promote the operation of emetics in difficult cases ; but other means are preferable.

EXHIBITION. In dropsical cases, a grain in a pill will be borne by most patients three times a day, and may be slowly increased, if nausea do not occur. But the more common forms of exhibition may be seen under the *Wine* of tobacco, the *Infusion*, and the *Liniment*.

TAMARINDUS.

Tamarind.

The tamarind tree of the East and West Indies contains in its pods an acid pulp, by which the seeds are imbedded. The pods are preserved for exportation by placing them in layers in a cask, and pouring boiling syrup over each layer until the cask is filled. According to Vauquelin, the pulp contains gum, jelly, a feculent matter, supertartrate of potass ; and citric, tartaric

and malic acids. The sour taste is principally dependant on the citric acid, which is the most abundant. Tamarinds are refrigerant and laxative, and, from their agreeable taste, form, when mixed with water, a pleasant beverage in febrile and inflammatory diseases. They are used in various purgative compounds to improve their taste, but are not active enough to be depended on alone for their laxative effect. They should not be prepared in copper vessels.

TANACETUM.

Tansy.

Tansy has become naturalized in this country, and is not unfrequently met with growing by road sides. It has a strong, penetrating odour, and an acrid, bitterish taste. Its chief medicinal properties reside in a yellowish, volatile oil. Tansy is considered tonic and anthelminthic. It has had, also, some confidence in obstructed catamenia and hysteric affections. It is most commonly given in infusion.

TAPIOCA.

Tapioca.

The *Jatropha manihot*, or cassava tree of the West Indies and tropical America, has a fleshy, farinaceous root, which, when dried and reduced to powder, furnishes a coarse meal, used for baking by the negroes and natives, and forming their *cassava bread*. The recent juice of the tree is highly poisonous; but the whole virulence disappears in drying and baking. Tapioca is the pure farinaceous part of this root, separated by agitating the whole in water, and suffering the coarser parts to subside. The upper portion of the liquid is then poured off, while yet turbid, and de-

posits the tapioca on standing. This article consists, apparently, of pure fæcula, and resembles arrow root in its general properties. With boiling water it forms a light demulcent, and nutritive article of food for the sick, and is subject to the remarks made under the head of *Maranta*.

TEREBINTHINA.

Turpentine.

Turpentine, nearly uniform in its general qualities, is obtained from various species of pine trees ; but the largest quantity is afforded by the pitch pine of our southern states. This substance has a strong odour, a warm, pungent, bitterish taste, is semifluid, semitransparent, very adhesive and inflammable, burning with a white flame and much smoke. It is *soluble* in alcohol, ether and oils, but is not soluble in water, though it impregnates it with its taste. It consists of resin dissolved in oil of turpentine. Taken in *doses* of one or two scruples, it is heating and sudorific. It is also diuretic, communicating to the urine the odour of violets, and, if long persevered in, producing symptoms of strangury. Turpentine is not a good ingredient for plasters, as they are apt, when they contain it, to grow hard by losing the volatile oil.

TEREBINTHINÆ OLEUM.

Oil of Turpentine.

This oil is obtained from turpentine by distillation. It has the common characteristics of a volatile oil, but possesses some peculiar habitudes in regard to alcohol, being soluble in seven parts of hot alcohol, but separating in a great measure as the spirit cools. Although oil of turpentine evaporates readily at low temperatures,

it requires a heat exceeding 300° Fahrenheit for its active volatilization. The odour of this oil resembles that of the turpentine from which it is extracted, and its taste is highly acrimonious.

USES. Taken into the stomach, it occasions a sense of warmth in that organ, and commonly throughout the system. In small doses it acts upon the kidneys, increasing the quantity of urine, and communicating to it an odour like that of violets. It is remarkable that this violet odour may be produced in the urine of persons, who have not taken the medicine, but simply been exposed to the contact and inhalation of its vapour. Large doses generally create nausea and oppression, with some vertigo, and in a short period fall upon the bowels and pass off by purging.* Such doses also, sometimes, though not often, occasion strangury. This medicine, in small and repeated quantities, has been found beneficial in rheumatism, particularly sciatica, in gleet, fluor albus, and paralysis of the neck of the bladder. Administered in a large quantity, it has of late years been found the most speedy and effectual of all anthelmintics in cases of tænia, speedily destroying the animal, and discharging it of a livid

* In two very interesting papers on the oil of turpentine, published by Dr. Copland in the London Medical and Physical Journal, it appears, that this medicine is not always a certain purgative, when taken alone, even in large doses. The author took himself *ten drachms* of the oil in the morning on an empty stomach, having fasted the night before. It produced a sensation at the stomach between pain and warmth, vertigo, paleness, chills, and an increase of frequency in the pulse during the whole day from 69 up to 92, it being at first full, but afterwards weak and small. Weakness, thirst, anxiety and nausea continued during the day, with a sensation as if the abdominal viscera were drawn towards the spine, and the vital energies concentrated about them. A strong turpentine odour was incessantly exhaled from the lungs, so that the house was filled with it. The urine was much increased in quantity, without strangury, having the natural colour, a violet odour, and no sediment. The next day much debility remained, but the terebinthinate odour disappeared; on the third day he was recovered; and on the fourth, *for the first time*, had a costive discharge from the bowels. Dr. C. considers that the turpentine escaped from the circulation chiefly by exhalation from the lungs.

colour, and without animation. In puerperal fever it acquired at one time the reputation of a specific among the physicians of the city of Dublin. In epilepsy, its use, both in small and in large doses, has acquired for it a considerable share of confidence. That it is not always, however, successful in this disease, I have had occasion to observe, having seen a violent epileptic paroxysm take place on the following night after a patient had taken an ounce of the oil of turpentine with a full cathartic effect.

Oil of turpentine is an excellent external stimulant in rheumatic complaints, and deep-seated inflammations. It distinctly increases the vesicating power of cantharides. It has been strongly recommended by Mr. Kentish and others as a local application to recent burns and scalds; but from my own experience with both modes, I believe an emollient plan of treatment preferable in these cases.

EXHIBITION. As far as the taste is concerned, this oil is best taken clear, floating on cold water, and may be swallowed with as much ease as ardent spirits. Combination with other substances is not found to improve or disguise its taste, but on the contrary, by increasing its bulk, to render the deglutition more difficult. But the facility with which it remains on the stomach is said to be materially increased by combination. Agreeably to a principle laid down by Fordyce, that a combination of several aromatic, or acrid substances, causes less inconvenience to the stomach than any one of them singly; it is found that oil of turpentine, combined with a little ammonia, camphor, cayenne pepper, or some aromatic tincture; is less apt to occasion nausea and distress of the stomach, than if taken alone.—Dr. Nimmo has lately announced, that if oil of turpentine be repeatedly agitated with successive portions of alcohol, a part of it is dissolved, and the residue becomes nearly tasteless, and almost without smell. It recovers, however, its former qualities on standing. It remains a question, how far the medicinal powers are affected by this purification.

In cases of tape worm, from half an ounce to two ounces are taken fasting at once. This quantity, if retained by the stomach, seldom fails to purge actively and soon. If, however, from any

circumstance, it lingers in the bowels, castor oil should be added to expedite its effect. For rheumatism, gleet, &c. from ten to sixty minims on sugar or water, with some aromatic tincture, may be taken three times a day. If strangury occur, its use must be suspended.

TEREBINTHINA CANADENSIS.

Canada Balsam.

This article, known here by the name of fir balsam, and in England by the name of Canada balsam, and sometimes by that of balm of Gilead, is produced by the *Pinus balsamea*, or silver fir, the *Abies balsamifera* of Michaux, a tree common in Maine, New Hampshire and Canada. It is obtained by puncturing small vesicles on the bark, in which it is deposited. It is more fragrant than the turpentine, but agrees with them in its general properties. It is a popular application to recent incised wounds; but, like other foreign substances, it must be injurious in such cases by preventing union by the first intention.

TINCTURÆ.

Tinctures.

Tinctures are spirituous solutions, made by digesting medicinal substances in alcohol or proof spirit. In most instances the crude material, vegetable or animal, is digested in spirit, till its soluble parts are extracted. But sometimes a soluble portion, already extracted, or a soluble mineral substance, is dissolved directly in spirit to form the tincture. Pure alcohol is not generally used in the formation of tinctures, diluted alcohol being found adequate to dissolve not only gum-resins, extractive, &c.—for which it is

indeed the best menstruum—but also, to a certain degree, resins, volatile oils, and other substances, which are insoluble in water.

The chief advantages attending this class of preparations are, that they afford us solutions of many substances, which cannot be dissolved in aqueous fluids; and that when made they can be kept unchanged for an indefinite number of years. On the other hand, a great objection exists against them, as a general form of preparation, in the circumstance that the solvent employed is itself medicinal; that it is frequently injurious in disease, and incompatible with the favorable action of the medicine it contains.

The tincture may be considered a proper form for exhibiting medicines in the following cases: 1.—When the dose of the medicine dissolved is so small that the nature of the menstruum is of no consequence; as in the *Tinctures of opium, cantharides, digitalis, muriate of iron, &c.* 2.—When the medicine dissolved is of a kind, which will be promoted in its action by the solvent, rather than retarded by it; as in the *Tinctures of camphor, guaiacum, capsicum, myrrh, &c.* 3.—When the menstruum only modifies or retards, but does not prevent the action of medicines; as in the various cathartic tinctures.

The habitual, or long-continued use of tinctures, especially of those which require large doses, is generally pernicious; and often leads to habits of intemperance.

TINCTURA ALOES. *Tincture of Aloes.*—This preparation, derived from the Edinburgh College, is rather an aqueous solution than a tincture, no more alcohol being added than is sufficient to prevent decomposition. *Dose*, about a fluidounce.

TINCTURA ALOES ET MYRRHÆ. *Tincture of Aloes and Myrrh. Formerly Elixir Proprietatis.*—This compound is an imitation of the *Elixir proprietatis* of Paracelsus. It is a popular remedy in catamenial obstructions, flatulent pains of the stomach and bowels, hysteria, &c. *Dose*, from one to four fluidrachms. To young infants it is given for pain from flatulence in doses of twenty or thirty minims in water.

TINCTURA AMMONIATA AROMATICA. *Ammoniated aromatic Tincture*.—From the nature of its ingredients, this compound is highly stimulating and antispasmodic in the *dose* of thirty minims.

TINCTURA ANGUSTURÆ. *Tincture of Angustura*.—The properties are those of Angustura. *Dose*, one or two fluidrachms.

TINCTURA ASSAFETIDÆ. *Tincture of Assafetida*.—The virtues of assafetida are fully extracted by diluted alcohol. The tincture is more easy of exhibition in cases of hysteria, and more speedy in its effect, than the medicine in substance. *Dose*, about half a fluidounce.

TINCTURA CAMPHORÆ. *Tincture of Camphor*.—This alcoholic solution of camphor is much used, by rubbing it on the skin, in rheumatism, sprains, bruises, chilblains, &c.

TINCTURA CAMPHORÆ OPIATA. *Opiated Tincture of Camphor*. *Formerly Paregoric Elixir*.—This preparation has been formerly designated in all the British pharmacopœias by the name of *Tinctura opii camphorata*. The London College have since changed it to *Tinctura camphoræ composita*, on account of the mistakes which, according to Dr. Powell, were found to arise from abbreviated prescriptions, between this medicine and *Tincture of opium*. The American name agrees with the one first mentioned, except in the transposition of the terms. The preparation also contains oil of anise, honey and liquorice, which are not directed in the present British formulæ. This compound, with different variations, has long been a popular medicine under the names of *Elixir paregoric* and *Elixir asthmatic*. It is much employed as a palliative in catarrh and asthma, and an ingredient in expectorant mixtures. Being a weak preparation of opium, containing less than two grains in a fluidounce, it is much resorted to by nurses and others, who are timid in regard to the stronger preparations. It is however more heating, in proportion to the dose, than pure opium or laudanum. *Dose*, from one to three fluidrachms.

TINCTURA CANTHARIDUM. *Tincture of Cantharides.*—This is the common *Tinctura lyttæ* of the London College. It is of suitable strength for internal exhibition in all cases where cantharides are indicated. The *dose* is from fifteen minims to a fluidrachm, three times a day, to be increased at each time, until symptoms of strangury occur, or the object of the medicine is accomplished. See *Tinctura capsici et cantharidum*.

TINCTURA CAPSICI. *Tincture of Cayenne Pepper.*—This tincture possesses all the powers of cayenne pepper, and is given in *doses* of from a half to a whole fluidrachm.

TINCTURA CAPSICI ET CANTHARIDUM. *Tincture of Cayenne Pepper and Cantharides.*—This is a very strong tincture of flies, intended for external application. It is of the same strength as the *Tinctura meloes vesicatorii fortior* of the Massachusetts Pharmacopœia. The addition of the capsicum serves to increase its activity, and to prevent dangerous mistakes between two tinctures of very different strength. This preparation vesicates speedily and well, if kept permanently applied to the skin, or renewed as it dries up. When applied to the hairy part of the head, it should be carefully combed or rubbed in.

TINCTURA CARDAMOMI. *Tincture of Cardamom.*—A pleasant, spicy addition to tonic infusions. *Dose*, if taken alone, one or two fluidrachms.

TINCTURA CASTOREI. *Tincture of Castor.*—Tincture of castor is given as an anti-hysteric and emmenagogue in the *dose* of from one to four fluidrachms.

TINCTURA CATECHU. *Tincture of Catechu.*—A pleasant, warm astringent, having the combined properties of catechu and cinnamon. *Dose*, from one to three fluidrachms.

TINCTURA CINCINCHONÆ. *Tincture of Peruvian Bark.*—The American tincture of Peruvian bark is of intermediate strength

between those of London and Edinburgh. It is as strong as it can well be made without great loss of the spirit by absorption. The activity of this preparation is by no means proportionate to its expense, and it cannot be given in doses sufficiently large to produce the effects of the bark in substance, without at the same time introducing an injurious quantity of alcohol. The *dose* is from one to four fluidrachms; but it is chiefly used as an adjunct to the other liquid preparations of bark.

TINCTURA CINCHONÆ COMPOSITA. *Compound Tincture of Peruvian Bark.*—This is, in all important particulars, the same with the tincture of Dr. Huxham, employed by him as a febrifuge. It is now chiefly used as a pleasant stomachic, but is too stimulating to be employed with propriety for any great length of time. *Dose*, from one to three fluidrachms.

TINCTURA CINNAMOMI. *Tincture of Cinnamon.*—This is a very pleasant and efficacious astringent, much used in diarrhœa, both alone and combined with opiates and antacids. *Dose*, one or two fluidrachms.

TINCTURA COLOMBÆ. *Tincture of Columbo.*—This is a pure and strong bitter. It is a useful tonic in dyspepsia and habitual nausea. *Dose*, a fluidrachm.

TINCTURA DIGITALIS. *Tincture of Foxglove.*—The effects of digitalis may be fully derived from this tincture by giving it in *doses* of ten or fifteen minims three times a day, and increasing it by an addition of one or two minims to each successive dose until the characteristic symptoms, which result from the plant, are felt.

TINCTURA FERRI ACETATIS. *Tincture of Acetate of Iron.*—In the formation of this tincture, a double decomposition takes place, by which the acetate of potass and sulphate of iron are converted into sulphate of potass and acetate of iron. The metallic salt alone being soluble in alcohol, a tincture of acetate of

iron is produced. This article is said by Dr. Percival to be an agreeable and useful chalybeate. The *dose* is one or two fluidrachms. It is more palatable than the liquid acetate, and one of the two, at least, may be regarded as superfluous.

TINCTURA FERRI MURIATIS. *Tincture of Muriate of Iron.*—This alcoholic solution of muriate of iron is one of the most powerful chalybeates. It has a peculiar smell, and a disagreeable, styptic taste. It is tonic, stimulant and astringent, and is usefully given in chlorosis, chorea, menorrhagia and dyspepsia. Fifteen or twenty minims may be taken in water three times a day. Large doses occasion nausea and oppression.

TINCTURA GENTIANÆ. *Tincture of Gentian.*—This tincture is a warm, stimulating tonic, used to excite appetite and promote digestion; but, like other medicines of its class, very frequently abused by habitual and unnecessary repetition. *Dose*, one or two fluidrachms.

TINCTURA GUAIACI. *Tincture of Guaiacum.*—The proportion of resin of guaiacum directed for the American tincture is greater than that in either of the British formulæ. Tincture of guaiacum is much used in chronic rheumatism, two or three fluidrachms being a proper *dose*. It is too acrid to be taken clear, and, when mixed with water, the resin separates in an adhesive state, and is apt to concrete upon the spoon or vessel used. On this account the tincture is a less eligible form than the powder.

TINCTURA GUAIACI AMMONIATA. *Ammoniated Tincture of Guaiacum.*—The ammonia present in this preparation renders it more stimulating than the simple tincture of guaiacum. It is applied to the same cases in a smaller *dose*.

TINCTURA HELLEBORI NIGRI. *Tincture of Black Hellebore.*—Employed as an emmenagogue in the *dose* of half or a whole fluidrachm.

TINCTURA HUMULI. *Tincture of Hop.*—This preparation of the hop is tonic and soporific in the *dose* of a fluidrachm.

TINCTURA HYOSCYAMI. *Tincture of Henbane.*—This tincture is anodyne and soporific, without the constipating effect of laudanum. It affects many persons favorably, though not all. *Dose*, a fluidrachm or somewhat less.

TINCTURA JALAPÆ. *Tincture of Jalap.*—This is an exceedingly strong tincture of jalap, agreeing with that of the London College. It is an irritating cathartic in the *dose* of from one to three fluidrachms.

TINCTURA KINO. *Tincture of Kino.*—A very good astringent, applicable to some cases of diarrhœa, in *doses* of one or two fluidrachms.

TINCTURA LAVANDULÆ. *Tincture of Lavender.*—This is an agreeable stimulant and cordial, used in syncope, hysteria, flatulence, &c. either alone, or as an adjunct to other medicines. *Dose*, one or two fluidrachms.

TINCTURA LOBELLE. *Tincture of Indian Tobacco.*—This tincture is exhibited in asthma, &c. in the *dose* of about a fluidrachm, which may be repeated, if neither vomiting nor relief is produced.

TINCTURA MENTHÆ PIPERITÆ. *Tincture of Peppermint.*—Considering the very common use made of tinctures of peppermint, by nurses and inexperienced persons as well as by physicians; it is highly important that the strength of the preparation should be uniform. A number of different articles have been in use, under the names of *tincture*, *spirit*, or *essence* of peppermint, some of which are three or four times as strong as others. The American tincture is stronger than the spirit of peppermint of any of the British colleges, and is a much more certain preparation. At the same time, it is weaker than some of the

essences sold in the shops. A fluidrachm contains about one minim of the oil. The *dose* for an adult is one or two fluidrachms, and for infants from five to twelve minims. If it is dropped in hot water long before it is used, a part of the strength is lost by evaporation.

TINCTURA MENTHÆ VIRIDIS. *Tincture of Spearmint.*—This resembles the preceding article in its proportions, but may be given in a somewhat larger dose.

TINCTURA MOSCHI. *Tincture of Musk.*—A costly and useless preparation. An effectual *dose* of the musk carries with it a gill of pure alcohol.

TINCTURA MYRRHÆ. *Tincture of Myrrh.*—Sometimes used as a tonic and emmenagogue in the *dose* of a fluidrachm, but more frequently as a gargle, when diluted with water, for spongy gums and sore throats.

TINCTURA OPII. *Tincture of Opium. Called Laudanum.*—The quantities of opium directed for this tincture by the Dublin, London, Edinburgh and American pharmacopœias, are all different from each other. The Dublin College employs ten drachms of purified hard opium to a pint of spirit; the London an ounce and a quarter of hard powdered opium to a pint; the Edinburgh an ounce of opium to a pound of spirit; the American Pharmacopœia an ounce to a pint. These tinctures are probably all of about the same strength. Dr. Duncan states, that the tinctures of the different British pharmacopœias furnish *the same quantity* of extract on evaporation. Although the American laudanum is by calculation a little weaker than any of the others, yet it appears to be fully saturated; and if the dregs which remain after its preparation be digested with a fresh quantity of spirit, they will still furnish laudanum of considerable strength. It is probable, therefore, that the employment of a greater quantity would be only a waste of opium. Mr. Phillips found that a fluidounce of spirit takes up more of purified opium than of

crude opium; but Dr. Duncan thinks that this difference is compensated by the diminution of strength which opium undergoes in its purification.

Tincture of opium, on standing, always deposits a sediment, and this goes on indefinitely increasing, apparently in proportion to the age of the preparation. The nature of this deposit has not, to my knowledge, been explained. It differs from opium in not being again soluble in the same menstruum. It may possibly consist of insoluble particles, sufficiently minute to pass the filter, and from the nearness of their specific gravity to that of the fluid, requiring a long time for their deposition. But more probably this sediment is the result of chemical reaction among the constituents of the tincture, like that which takes place in decoctions from long boiling, and by which an insoluble substance is formed. I find that *a grain* of this sediment is not dissolved, by frequent agitation during forty-eight hours, in a fluidounce of alcohol, of diluted alcohol, of sulphuric ether, or of water. It is moderately inflammable, partially fusible, and, when washed with alcohol and water, it has a much more feeble taste than opium. Its medicinal powers are also much weaker than those of pure opium.

Most of the other *tinctures* deposit sediments in the same manner, after long standing. How far their strength may be impaired by it, it is difficult to say. There seems to be no better preventive against this deposition, than that tinctures should be prepared by druggists in small quantities at a time, in order that they may be the more frequently renewed.

TINCTURA QUASSIÆ. *Tincture of Quassia.*—The bitter principle of quassia is fully communicated to diluted alcohol. *Dose*, a fluidrachm.

TINCTURA RHEI. *Tincture of Rhubarb.*—This tincture is a warm, stimulating cathartic, in the *dose* of from a half to a whole fluidounce.

TINCTURA RHEI ET ALOES. *Tincture of Rhubarb and Aloes. Formerly Elixir Sacrum.*—This is also a stimulating purgative, in about the same *dose* as the preceding.

TINCTURA RHEI ET GENTIANÆ. *Tincture of Rhubarb and Gentian.*—This is a laxative, bitter tincture, adapted to certain cases of dyspepsia, diarrhœa, &c. As a tonic or astringent, one or two fluidrachms may be given.

TINCTURA RHEI DULCIS. *Sweet Tincture of Rhubarb.*—This tincture is more agreeable to the taste than any of the foregoing preparations of rhubarb, and is a popular cathartic in some parts of the United States. *Dose*, half or a whole fluidounce. The tinctures of rhubarb are generally slow cathartics, but are mild in their operation, and leave the bowels in a good state. They are well calculated for the low stages of fever, on account of the safety of their operation, the cordial as well as purgative influence which they exert, and the convenient criterion of their operation afforded by the yellow colour of the discharges. Very small doses are sometimes sufficient in these cases.

TINCTURA SANGUINARIÆ. *Tincture of Bloodroot.*—This tincture has a fine red colour, and a bitter, acrid taste. It is sometimes used as a tonic in the *dose* of a fluidrachm, which quantity does not commonly produce nausea.

TINCTURA SAPONIS ET OPII. *Tincture of Soap and Opium.*—This is the old *Anodyne balsam*, a very convenient opiate, possessing about half the strength of laudanum. The taste of the opium is concealed by the other ingredients, a circumstance of some importance in the case of patients who have an aversion to that medicine. I have repeatedly found it to remain on the stomach when laudanum would not. The *dose* is from forty to sixty minims.

TINCTURA SENNÆ AROMATICA. *Aromatic Tincture of Senna. Warner's Gout Cordial.*—This is a stimulating tincture, render-

ed laxative by the rhubarb and senna which it contains. It is essentially the same with the gout cordial of Warner. The *dose* is about two fluidounces in an equal quantity of hot water.

TINCTURA SENNÆ COMPOSITA. *Compound Tincture of Senna. Formerly Elixir Salutis.*—This is one of the more active purging tinctures, employed in flatulent colic, atonic gout, &c. The *dose* is from a quarter to a whole fluidounce. Its most common use, however, is that of an auxiliary and corrective to other medicines, particularly to castor oil, with which it is very frequently administered.

TINCTURA SERPENTARIÆ. *Tincture of Virginia Snake Root.*—A tonic and stimulating adjunct to other medicines, most frequently given with infusions of bark. *Dose*, one or two fluidrachms.

TINCTURA STRAMONII. *Tincture of Thorn Apple.*—The commencing *dose* is fifteen or twenty minims, to be increased by five minims at each dose, until the characteristic effects of stramonium are produced, if necessary.

TINCTURA ACIDI SULPHURICI. *Tincture of Sulphuric Acid.*—This is the *Aromatic sulphuric acid* of the Edinburgh College, formerly called *Elixir vitrioli*. The three *fluidounces* of the American Pharmacopœia are an approximation to the six *ounces*, by weight, of acid in the Edinburgh formula. It is probable, that the alcohol in this preparation is partly converted into ether by combining with the acid. The activity, however, of the medicine, depends upon the uncombined sulphuric acid, from which the name of the compound is properly taken. Dr. Duncan arranges it with the ethereal tinctures. It affords an elegant mode of exhibiting sulphuric acid, the taste of which is improved by the aromatics. *Dose*, from ten to forty minims, largely diluted with water.

TINCTURA TOLUTANI. *Tincture of Tolu.*—This tincture is chiefly used for making the syrup, to which it imparts the agreeable flavour of Tolu.

TINCTURA VALERIANÆ. *Tincture of Valerian.*—Diluted alcohol extracts the virtues of valerian; but the quantity requisite to display the powers of that medicine would require the introduction of too much alcohol. It is less eligible than the infusion, to which it is sometimes made an adjunct.

TINCTURA VALERIANÆ AMMONIATA. *Ammoniated Tincture of Valerian.*—This is more powerful as an antispasmodic than the preceding article. It may be given in hysteric cases in the dose of half a fluidrachm in some mild vehicle.

TINCTURA VERATRI VIRIDIS. *Tincture of American Hellebore.*—A great part of the spirit directed is absorbed by the root in the preparation of this tincture. It is sometimes given in gout and rheumatism, in the dose of ten or fifteen minims.



TOLUTANUM.

Tolu.

The balsam called Tolu is brought in gourd shells from South America, where it is procured from the *Toluiifera balsamum* by incisions made in the bark. It has been lately announced by Mr. Lambert, that this tree is the same as the *Myroxylon Peruvianum*.* It follows, if this be true, that the balsams of Peru and of Tolu are the same substance, except that the latter is more commonly inspissated by evaporation, and reaches us in a solid form. It contains benzoic acid, volatile oil, and resin. Its taste is warm and somewhat sweetish, and its odour not wholly unlike

* Brande's Quarterly Journal, No. XIX. p. 28.

that of lemon. By solution of potass, its odour is changed to one resembling that of clove-pink. It is a stimulating expectorant, sometimes found useful in chronic bronchitis, asthma, and catarrh; but inadmissible in acute pulmonary inflammation. On account of its agreeable flavour, it is a favorite adjunct to diaphoretic and expectorant mixtures. *Dose*, from five grains to two scruples.

TORMENTILLA.

Tormentil.

The *Tormentilla erecta* is an European plant, having a very astringent root, seldom used in this country.

TOXICODENDRON.

Poison Oak.

The *Rhus toxicodendron* and *R. radicans* are American plants, closely resembling each other in their habit and qualities, and by many botanists supposed to be varieties of the same species. They are well known by the names of *poison oak* and *poison ivy*. These shrubs, in common with *R. vernix* and one or two other species, are highly poisonous to certain constitutions, although many persons are incapable of being affected by them. The poison is received by the contact, and even the effluvium of these plants, and appears in the form of a cutaneous disease, first consisting in redness, tumefaction and itching of the face and hands; which are followed by blisters, suppuration, aggravated swelling, heat, pain and fever. The disease commonly increases for four or five days, when desquamation takes place, and recovery follows. The morbid affection appears to be of the erysipelatous kind, and is to be treated with rest, low diet, purging with neutral

salts, and bloodletting in plethoric patients, when the arterial excitement is great. A cold solution of acetate of lead is the best external application.

The toxicodendron has been introduced into medicine, by Dr. Alderson in England and Dr. Fresnoy in France, for the treatment of paralysis and cutaneous eruptions. It has also been given in consumptive complaints in this country. But I know of no evidence of advantage derived from it sufficient to justify the hazard of keeping it in apothecaries' shops. It is one of the most uncertain of medicines, sometimes having been carried to the extent of an ounce of the extract at a dose without effect; at other times having produced alarming consequences in an almost imperceptible quantity.

The milky juice of *Rhus radicans* forms an indelible marking ink. For a full account of this plant and *Rhus vernix*, see American Medical Botany, Vols. I. and III.

TRAGACANTHA.

Tragacanth.

ORIGIN. It appears from Olivier, a French traveller in Asia, that gum tragacanth is principally procured from the *Astragalus verus*, a shrub of the north of Persia. Some other species, also, afford a similar gum. It exudes from the bark in hot weather, and concretes in slender, tortuous masses.

QUALITIES. This gum is inodorous and insipid, or slightly bitter. It is in whitish, semitransparent, thin, wrinkled, vermiform pieces; brittle, but not easily pulverized, except in cold weather, or in a warmed mortar. It requires a large portion of water, and much trituration, to effect its solution. In alcohol, it is scarcely soluble. Its mucilage differs from that of gum arabic in being precipitated by acetate of lead and oxymuriate of tin, and not by silicated potass. It resembles more nearly the

gum of cherry trees, and has been included by Dr. John under the name of *cerasin*.

USES. Like gum arabic, it is a useful demulcent in strangury, dysentery and catarrh; but its chief use is that of an uniting medium in pharmacy.

TRIOSTEUM.

Fever Root.

The *Triosteum perfoliatum* is a native plant, the root of which is cathartic in the dose of thirty or thirty-five grains. It sometimes operates as an emetic in the same doses. The strength is somewhat impaired by keeping, so that the stock should be renewed every year.

TROCHISCI.

Troches.

These are preparations of no great value, consisting of medicines made up with sugar and mucilage into small, hard masses.

TROCHISCI GLYCYRRHIZÆ CUM OPIO. *Troches of Liquorice and Opium.*—These may be chewed in catarrhal affections to the amount of half a dozen in a day.

TROCHISCI CALCIS CARBONATIS. *Troches of Carbonate of Lime.*—The antacid effects of the carbonate of lime, it is feared, may be frustrated by the acescency of the sugar.

TROCHISCI MAGNESIÆ. *Troches of Magnesia.*—These are given in cases of acidity in the primæ viæ, but are subject to the

same objection as the former article. A drachm or two may be taken as a laxative.

ULMUS.

Slippery Elm.

The *Ulmus fulva*, or slippery elm, inhabits the northern and western parts of the United States, from Canada to Pennsylvania. The inner bark of this tree is charged with a gummy substance in great quantity, so that if a small piece is chewed in the mouth, it almost instantly fills it with thick, viscid mucilage. This bark, both in substance and in decoction, is a valuable demulcent in dysentery, and in strangury either produced by cantharides or resulting from other causes. Elm bark has been used as food, and found capable of supporting life in cases of emergency. Externally, it is employed as an emollient application, to promote suppuration, and to answer the different ends to which common poultices are applicable. For this purpose, either the green bark should be bruised, or the dried bark cut into shreds and boiled. Internally, it proves most palatable in the *Infusion*.

UNGUENTA.

Ointments.

Ointments are soft, unctuous solids, of an intermediate consistence between cerates and liniments, intended for external application.

UNGUENTUM ACIDI NITRICI. *Ointment of Nitric Acid.*—Nitric acid combines slowly with lard, giving it a yellowish colour and a waxy consistence. The ointment is of use in

some herpetic and syphilitic eruptions. It should not be used before the combination has become complete.

UNGUENTUM AQUÆ ROSÆ. *Ointment of Rose Water.*—This forms a very white and elegant ointment, strongly perfumed with rose water, which remains incorporated with the other ingredients. Our druggists inform me, that larger quantities of it are sold in this city than of any other ointment. It is used in slight eruptions and excoriations; also as an elegant vehicle for more powerful substances. It is otherwise called *Cold cream*, and *Ceratum Galeni*.

UNGUENTUM CANTHARIDUM. *Ointment of Cantharides.*—This is a weak preparation of cantharides, intended for keeping up the discharge of blisters. The activity of the flies, however, is nearly destroyed by boiling.

UNGUENTUM CUPRI SUBACETATIS. *Ointment of Subacetate of Copper.*—This is a stimulant and mild escharotic application for indolent ulcers.

UNGUENTUM GALLARUM. *Ointment of Galls.*—An astringent ointment, particularly used in hemorrhoidal affections.

UNGUENTUM HYDRARGYRI. *Mercurial Ointment.*—The preparation of the American Pharmacopœia is of nearly the same strength as the *Strong mercurial ointment* of the London College, three ounces of mercury being contained in seven of ointment. It was formerly supposed, that this ointment consisted of metallic mercury in a state of minute subdivision, mechanically mixed with lard. But it is now ascertained, that a part of the mercury is oxidized, and forms with the lard a chemical compound. The experiments of Mr. Donovan have thrown much light upon the nature of this compound, and may lead to important improvements in its preparation. He found that by exposing mercurial ointment, formed in the common way, to a heat of 212° for some time, it separated into two strata. The upper

stratum was of a light grey colour, and contained a portion of mercurial oxide in combination with the lard; the lower stratum was very heavy, and when triturated with magnesia afforded crude mercury, amounting to four fifths of all which had been employed. The upper stratum, although containing but a small quantity of oxide, was nevertheless extremely active, whence Mr. Donovan concludes, that a mercurial ointment of superior activity, as well as attended with greater economy, may be formed directly from the black oxide of mercury, and lard, by keeping them for some time mixed at a temperature a little above 300° , until they combine. He found that an ointment thus prepared with a very small quantity of oxide, was as active as the common mercurial ointment, containing twelve times the quantity of mercury.

Mercurial ointment requires for its preparation in the common way a very tedious process, much time and labour being requisite to extinguish the mercury, and produce a uniform blueish mass without visible globules of the metal. To facilitate the extinction of the mercury, a variety of substances have been added with the lard, most of which are considered objectionable, either as weakening the force of the mercury or as tending to irritate the skin. It is, however, found both useful and unobjectionable to add a small portion of old mercurial ointment, or a little lard which has become rancid from age.

This ointment affords a convenient and effectual mode of bringing the system under the mercurial influence. When rubbed upon the skin, it excites ptyalism as readily as the internal exhibition of mercurial medicines. For this purpose, about a drachm of the ointment should be rubbed upon the inside of the thighs, or some other part where the cuticle is thin, every morning and night, until the mouth is affected. The friction should be continued with the palm of the hand, and if possible, by the patient himself, until the ointment is completely rubbed into the pores of the cuticle, and none of it remains in a separable state. The effect on the system will be expedited, in urgent cases, if a portion of ointment be kept in each axilla.

UNGUENTUM HYDRARGYRI OXIDI CINEREI. *Ointment of Grey Oxide of Mercury.*—This ointment, in which mercury exists in the state of protoxide, would seem calculated to answer the same purpose as the common mercurial ointment. On trial, however, this has not been found to be the case. It cannot be rubbed in like the common ointment, the lard disappearing and leaving the oxide on the surface of the skin. Its mercurial powers on the system are also said to be much more feeble. These defects have been properly ascribed to the circumstance, that the mercurial oxide is in a state of mechanical mixture, and not of chemical combination with the lard. Mr. Donovan's experiments render it probable, that if this ointment were kept for some hours at a heat of 300°, such a combination of the ingredients would take place as to render it a very active preparation.

UNGUENTUM HYDRARGYRI NITRATIS FORTIUS. *Ointment of Nitrate of Mercury.*—This is a powerfully stimulant and alterative application, used with great benefit in cases of herpes, tinea capitis and some other eruptions. The name of *Citrine ointment* is commonly applied both to this and to the following preparation.

UNGUENTUM HYDRARGYRI NITRATIS MITIUS. *Milder Ointment of Nitrate of Mercury.*—This is used in the same cases as the preceding, and being milder in its effects, it is generally preferred in cases where a harsh operation might be injurious, as in complaints of the eyelids. It is very effectual in psorophthalmia, and in the purulent eyes of infants, which are obstinate, and resist the use of milder means. It becomes hard by keeping, and has a marbled appearance. When used, a small portion is melted by the flame of a candle, and applied with the finger, or in some cases with a camel's hair pencil.

UNGUENTUM HYDRARGYRI NITRICO-OXIDI. *Ointment of Nitric Oxide of Mercury.*—This is a stimulating ointment of much use, applied to indolent ulcers. Its activity is weakened by mixing it with any ointment containing resin.

UNGUENTUM HYDRARGYRI SUBMURIATIS AMMONIATI. *Ointment of Ammoniated Submuriate of Mercury.*—An effectual remedy in many cutaneous diseases. Cases of psora are sometimes removed by it.

UNGUENTUM PICIS LIQUIDÆ. *Tar Ointment.*—Frequently used in the cure of tinea capitis. A less adhesive ointment may be prepared by using suet or lard instead of wax.

UNGUENTUM PLUMBI SUBCARBONATIS. *Ointment of Subcarbonate of Lead.*—A mildly astringent and sedative application, used in cases of burns and excoriations.

UNGUENTUM SIMPLEX. *Simple Ointment.*—Employed to sheathe irritable surfaces, to dress blisters, and to furnish a vehicle for external medicaments.

UNGUENTUM STRAMONII. *Ointment of Stramonium.*—This ointment is a valuable sedative and anodyne application. It agrees remarkably well with hemorrhoids, with irritable and painful ulcers, and with many cutaneous eruptions.

UNGUENTUM SULPHURIS. *Sulphur Ointment.*—In the cure of the itch, this ointment, notwithstanding its disagreeable odour, continues to be preferred to all others for certainty and safety. It should be rubbed upon the affected parts of the skin for three successive nights, and may be washed off each subsequent morning. A little oil of lemon conceals the odour in a great degree.

UNGUENTUM SULPHURIS COMPOSITUM. *Compound Sulphur Ointment.*—Less disagreeable than the preceding, and probably more effectual in some cases.

UNGUENTUM VERATRI VIRIDIS. *Ointment of American Hellebore.*—This ointment is effectual in psora and some other eruptions. Its use requires caution; for if largely applied at once, it produces symptoms like those which attend the internal exhibition of the Veratrum.

UNGUENTUM ZINCI OXIDI IMPURI. *Ointment of impure Oxide of Zinc.*—Tutty ointment is used in some species of ophthalmia, and for sore nipples. Its action is moderately stimulating and astringent.

UVÆ.

Raisins.

Raisins are the dried fruit of the vine, (see the article *Vinum*.) They are chiefly made from two varieties, called the *black raisin grape*, and the *white raisin grape*. They are dried, sometimes by breaking down the bunches, and leaving them suspended on the vine; at others, by dipping them in a ley of potass, and spreading them to dry in the sun. The latter part of this process is the origin of the ancient name *Uvæ passæ*. Ripe grapes contain sugar, mucilage, jelly, albumen, gluten, supertartrate of potass; and tartaric, citric and malic acids. The *candying* of raisins is owing to the crystallization of their sugar. Raisins are used in pharmacy as an agreeable appendage to certain other medicines; but when taken alone in large quantities, they are apt to produce heart-burn and flatulence. The processes of cookery render them less digestible, by converting their sugar into acid.

UVA URSI.

Uva Ursi.

ORIGIN. The *Arbutus uva ursi* is a low, trailing shrub, common to Europe and the northern parts of America. With us it grows in beds, in the most dry and barren situations, which, from their remote resemblance to those of the cranberry vine, frequently give to the plant the name of *upland cranberry*.

QUALITIES. The leaves are small, evergreen and coriaceous, having a bitterish, astringent taste. Water is their best solvent. They contain tannin in such quantities that they have been used in the north of Europe for dressing leather. They are also said to possess mucus, bitter extractive, gallic acid, and some resin and lime.

USES. These leaves are astringent and tonic. They have been celebrated since the time of De Haen as a remedy in nephritic and calculous cases, and were at one time supposed even capable of dissolving stone in the bladder. This supposition is without foundation, and they are only to be viewed as a palliative in gravelly complaints and strangury, in which view they undoubtedly are entitled to confidence. Dr. Cullen adopts the opinion of De Heucher, that the symptoms of calculus generally are susceptible of relief from astringents, and believes that on this principle the *Uva ursi* mitigates complaints arising from that source. I have used this medicine considerably in nephritis and strangury, and am satisfied that it is a useful palliative, especially in protracted cases, where the more common remedies have failed to give relief. *Uva ursi* has been recommended in pulmonary consumption; but neither the character of the medicine, nor the result of enlarged experience, has justified confidence in its powers to relieve that disease.

EXHIBITION. One or two scruples may be given at a *dose* in powder; but a better form is that of a decoction made from half an ounce of the leaves boiled ten minutes in a pint of water, of which a gill may be taken three or four times a day, or oftener, if necessary.

VALERIANA.

Valerian.

ORIGIN. The *Valeriana officinalis* is a perennial plant of Europe, susceptible of cultivation in the United States. The

roots are dug in the autumn or spring, and carefully dried, during which process they lose about three fourths of their weight.

QUALITIES. Valerian has a peculiar, disagreeable odour, and a pungent, bitter taste. It contains, according to Trommsdorf, a greenish-white, volatile oil ; also fæcula, gum, extractive and resin. Water and alcohol extract its properties. It is remarkable that although this root is universally disagreeable to the human species, yet cats and some other animals are attracted and delighted with it.

USES. Valerian is a valuable antispasmodic and soporific. It is given with great advantage in hysteria, and produces a remarkable effect in quieting the nervous agitation which prevents sleep in delicate and irritable females. It seems to exceed all other medicines in its soporific effect in these cases, and is followed by no unpleasant consequence. It proves an anodyne in many cases of nervous head-ache, hemicrania, and even in tic douloureux, which last disease I have known to be much palliated by its use. It has had some fame in epilepsy, probably of the symptomatic kind.

EXHIBITION. From a scruple to a drachm may be given in fine powder, but a preferable form is that of the *Tincture*, and especially of the *Infusion* ; which see. Its disagreeable taste may be covered by cinnamon, mace or lemon peel.

VERATRUM ALBUM.

White Hellebore.

White hellebore is a native of the mountainous parts of the continent of Europe. The recent root has a disagreeable odour, which is lost in drying. Its taste is bitter, acrimonious and durable. M. M. Pelletier and Caventou have discovered a peculiar alkaline substance in this plant, which, they state, also exists in *Veratrum sabadilla*, and *Colchicum autumnale*, and to which they have given the name of *veratrine*, otherwise *veratria*.

This substance is white, pulverulent; has no odour, but excites violent sneezing. Its taste is acrid, but not bitter. It is scarcely soluble in cold water. Boiling water dissolves a very minute portion, and becomes acrid to the taste. In alcohol it is very soluble. At 122° Fahrenheit it melts, and afterwards appears like wax. It affects test papers like an alkali, and forms salts with acids. Small doses occasion violent vomiting, and may prove fatal.

USES. White hellebore is a violent emetic and cathartic, and is dangerous in large doses, from the prostration and narcotic symptoms, which it occasions. In small quantities, however, it is a manageable emetic, and has long been resorted to as an alterative in refractory chronic diseases, such as mania, epilepsy and cutaneous eruptions. Combined with opium, it removes the paroxysms of gout, and was at one time supposed to be the basis of the French gout specific, called *Eau medicinale*. Snuffed up the nose, it excites violent sneezing, and is powerfully errhine. It cures psora and some other cutaneous diseases, applied to the skin in the form of ointment, but is not accounted altogether safe.

EXHIBITION. Two or three grains of the powder form a safe dose. In gout the *Wine* of white hellebore has been employed; which see.

VERATRUM VIRIDE.

American Hellebore.

ORIGIN. The plant bearing this name grows in wet meadows and on the banks of brooks throughout the United States. It sends up a tuft of large plaited leaves early in spring, and in June produces a panicle of green flowers. It is often designated by the name of *poke root*, though a very different plant from the *Phytolacca*.

QUALITIES. Its properties resemble those of the *Veratrum album* of Europe, to which plant it is so closely allied in appear-

ance, that many botanists have considered them the same species. The root has a bitter taste, accompanied with acrimony, and leaves a permanent impression on the mouth and fauces. It abounds with a resinous juice, which adheres closely to a knife with which it has been cut. This is taken up by alcohol, and precipitated by water. The decoction has an intensely bitter taste, probably owing to an extractive principle. The distilled water has a slightly unpleasant taste, without bitterness or pungency. *Veratrine* probably exists in this root.

USES. Like the white hellebore, it is an acrid emetic, and a powerful stimulant, followed by sedative effects.* From the sum of my observations respecting it, I am satisfied that the root, when not impaired by long keeping or exposure, is, in sufficient doses, a strong emetic; commencing its operation tardily, but continuing it in many instances for a long time; in large doses affecting the functions of the brain and nervous system in a powerful manner, producing giddiness, impaired vision, prostration of strength, and diminution of the vital powers. Like the *Veratrum album* and *Colchicum autumnale*, the violent impression it makes upon the system is capable of arresting the paroxysms of gout, and of giving relief in some unyielding cases of protracted rheumatism. Like those articles, it requires to be given with caution and under vigilant restrictions. The solutions of this vegetable have appeared to me more active, in proportion to their quantity, than the substance; probably in consequence of part of the powder being thrown off in the first efforts to vomit.

Some patients have been relieved, both of gout and rheumatism, by moderate doses, such as do not bring on nausea or any disagreeable effect. Others have not derived benefit, except from such quantities as occasion vomiting. Some have experienced

* Josselyn, in his *Voyage to New England*, informs us that the young Indians had a custom of electing their chiefs by a sort of ordeal instituted with the roots of this plant, which he calls "White hellebore." A portion of the root was repeatedly given to each individual, and he whose stomach made the most vigorous resistance, or soonest recovered from its effects, was considered the stoutest of the party, and entitled to command the rest.

very distressing consequences, such as excessive sickness, purging, impaired vision, faintness, and even total insensibility, where the dose has been imprudently large.*

EXHIBITION. From three to six grains in powder will commonly occasion vomiting, the activity being in some degree proportionate to the freshness of the article. Dr. Ware found, that doses somewhat larger did not act with undue violence, in the case of some alms-house patients. A *wine* prepared like that of white hellebore has produced relief in gout and rheumatism, in doses of less than a fluidrachm. For external application, see the *Ointment* of this article.

VERONICA.

Veronica.

The *Veronica Virginica* is a tall, native plant, differing from the rest of its family in habit, and considered by Nuttall and some other botanists as a separate genus. Its root is very bitter and somewhat nauseous. It sometimes operates as a cathartic, in the *dose* of a scruple; but in several trials which I have made with it, I have found it uncertain in this respect.

VINUM.

Wine.

ORIGIN, &c. The vine, *Vitis vinifera*, has been cultivated from time immemorial, and the uses of its fermented juice were known in the most remote periods of history. At the present day, wine

* For a full account of this plant, see American Medical Botany, Vol. II. p. 121.

is made in all the countries of the south of Europe and the adjacent islands; and it is highly probable that it will hereafter become an object of profitable attention in the southern parts of the United States. The juice of the grape, when recently expressed, is called *must*. This, when exposed in vats to a temperature of 70°, begins to undergo the vinous fermentation; it becomes turbid, a motion takes place among its particles, a scum collects on its surface, the temperature rises, and carbonic acid is disengaged. In a few days, the scum and impurities subside, the liquor becomes clear, it is found to have lost much of its saccharine quality, and to have acquired the *vinous* character. It is then put into casks, and afterwards into bottles, during all which time a secondary fermentation insensibly continues, and the wine improves in character. It continues to ripen until it has acquired the greatest improvement of which it is capable, after which it passes into the acetous fermentation.

Several of the constituent parts of the grape, enumerated under the article *Uvæ*, appear to be necessary in the formation of wine. The *sugar* is the basis of the spirituous quality, the *gluten* promotes the fermentation, and the *tartaric* acid gives a quality which distinguishes wine from the fermented juice of other fruits. In most of the fruits from which artificial wines are made, the malic acid predominates instead of the tartaric, so that wines made from them partake of the qualities of cider. The fermentation, also, is less regular and complete in these, than it is in the juice of the grape, so that they require artificial additions to bring them to a state of resemblance to wine.

The stimulating properties of wine depend upon the alcohol which it contains, and which may be separated from it by distillation. The alcohol, however, is so modified by its combination with the other ingredients of the wine, that its intoxicating effects are much less in the state of wine, than when in the state of spirit. For example, it has been found by experiment, that Madeira, Sherry and Port contain from one fourth to one fifth of their bulk of alcohol, so that a person who takes a bottle of either of them will take nearly half a pint of pure alcohol, equal to almost a pint of brandy. The inebriating effect, then, of the wine

is obviously less than that of the spirit it contains. From this circumstance, some have supposed alcohol to be the *product* rather than the *educt* of distillation ; that its elements only existed in wine, and were not brought into combination except at the temperature necessary for distillation. It has been found, however, by Gay Lussac and others, that with the aid of a vacuum, alcohol may be separated at a temperature of 66° , and even as low as 56° . It has been also shown, that by precipitating the colouring matter and some other elements of wine by subacetate of lead, and afterwards saturating the clear liquor with subcarbonate of potass, the alcohol may be completely separated without any elevation of temperature. So that there can be hardly a doubt, that alcohol exists ready formed in wine, and that its activity is, in a certain degree, modified by the substances which are present and in combination with it.

A greater part of the wines consumed in this country contain uncombined alcohol. This is added in the form of brandy, during the fermentation of the wines, before their passage across the Atlantic. Farther additions are likewise made here, especially to the weaker kinds. Small quantities of spirit judiciously added at proper periods, become assimilated to the wine by fermentation, and are said to be *fretted in*, by which process the *body* of the wine is improved. But larger quantities than the wine can thus assimilate impair its vinous character, and cause it to approach to that of ardent spirit.

Mr. Brande has instituted a set of experiments for determining the relative quantity of alcohol in different wines. The following table contains the average quantity of alcohol, of the specific gravity .825, in a hundred parts by measure, of each wine :

Lissa,	25.41	Teneriffe,	19.79
Port,	22.96	Colares,	19.75
Raisin wine,	25.12	Lachryma Christi,	19.70
Marsala,	25.09	White Constantia,	19.75
Madeira,	22.27	Red Constantia,	18.92
Currant wine,	20.55	Lisbon,	18.94
Sherry,	19.17	Malaga,	18.94

Bucellas,	18.49	Tent,	13.30
Red Madeira,	20.35	White Champagne,	13.30
Cape Muschat,	18.25	Red Champagne,	11.93
Cape Madeira,	20.51	Red Hermitage,	12.32
Grape wine,	18.11	Vin de Grave,	13.37
Calcavella,	18.65	Frontignac,	12.79
Vidonia,	19.25	Cote Rotie,	12.32
Alba Flora,	17.26	Gooseberry wine,	11.84
Malaga,	17.26	Tokay,	9.88
White Hermitage,	17.43	Elder wine,	9.87
Roussillon,	18.13	Orange wine,	11.26
Claret,	15.10	Cider, highest average,	9.87
Malmsey Madeira,	16.40	Cider, lowest average,	5.21
Lunel,	15.52	Perry,	7.26
Sheraaz,	15.52	Mead,	7.32
Syracuse,	15.28	Burton ale,	8.88
Sauterne,	14.22	London Porter,	4.20
Burgundy,	14.57	Small beer,	1.28
Hock,	13.68	Brandy,	53.39
Hock, old, in cask,	8.88	Rum,	53.68
Nice,	14.63	Gin,	51.60
Barsac,	13.86		

Wines admit of four divisions, as follows:

1.—SWEET WINES. These are *Malaga*, *Frontignac*, *Tokay*, *Malmsey*, and others of the kind. They contain a certain portion of saccharine matter, which has not been fermented, or converted into wine. They may be produced by an imperfect fermentation, by partially drying the grapes before they are pressed, or by boiling the unfermented juice.

2.—SPARKLING WINES, of which *Champagne* is an example. These contain large quantities of carbonic acid in consequence of their being bottled at an early period. Champagne is *brisk* if bottled any time between the vintage and the following May. If the bottling be omitted till October, the Champagne is *still*. It is, however, somewhat improved in strength.

3.—**DRY and LIGHT WINES**, such as *Claret, Burgundy, Hermitage* ; also the German wines, *Hock, Rhenish, Mayne, Moselle*, &c. In these the saccharine principle is completely overcome by fermentation. The spirit produced, however, is small in amount, and the wines have an acidulous character.

4.—**DRY and STRONG WINES.** *Madeira, Sherry and Port* are of this kind. In all these a quantity of brandy is fretted in during the first or second fermentation. In Madeira, care is taken to free the grapes from the stalks and unsound ones, before they are committed to the press. At Xeres in Spain, where Sherry is made, the grapes are slightly dried, and sprinkled with quicklime before they are subjected to the press. Hence Sherry is one of the least acid of wines.

The red colour and rough taste of certain wines are owing to the fermentation being conducted on the skins of the grapes, which are red. The skins of white grapes will not produce the red colour. The *bouquet*, or odour of wine, depends upon a volatile principle held in solution. This, in the sweet and half fermented wines, as in Frontignac and Muscat, is derived immediately from the grape ; but in the more perfect wines, as Claret, Hermitage, &c. it bears no resemblance to the fruit, and is wholly the product of the vinous process. The nutty flavour, so well known in Sherry, Madeira, and some other wines, is produced by almonds.

Wines, especially those of the weaker kind, are subject to become sour by the acetous fermentation. This defect cannot be properly remedied, since alkalies, which neutralize the acid, communicate to the wine an unpleasant taste. Oxides of lead correct the acidity and communicate a sweet taste, but render the wine deleterious to health. They may be suspected to be present if the wine gives a dark precipitate on the addition of some liquid sulphuret.

USES. Wine is highly cordial and stimulant in its effects on the human system. To many persons in health, it becomes in a manner necessary in consequence of an artificial want produced by its habitual use. But it is peculiarly important to the sick, in all those states of disease which are attended with dangerous prostration, or great exhaustion of the vital powers. In the low

stages of fever, both before and immediately after a crisis, when the debility is excessive, the pulse small and rapid, and the digestive organs incapable of assimilating food; wine seems to take the place of nourishment, and frequently supports the patient, when to all appearance he must sink without it. It is particularly called for, when there exists twitching of the tendons, sliding down in the bed, and low muttering delirium, indicating an advanced and dangerous state of debility. In these cases, it may be given with the utmost freedom, and produces a much less intoxicating effect than it would on the same person in a state of health. It is a point of some nicety to determine the exact period in fevers, at which the use of wine begins to be proper. In general, if the debility be not great, it should not be given till after the crisis; but if an alarming degree of prostration appears, attended by the symptoms which have been mentioned, wine may be commenced at a much earlier period. It is necessary to watch the effect of the first doses, and to diminish or suspend them, if they increase the frequency of the pulse, the heat, thirst and restlessness. On the contrary, if the pulse becomes slower and more soft and full under the use of wine, and the patient more composed, we are authorized to persevere in its use, and may expect much benefit to result from it.

Wine is necessary to support the strength under profuse suppurations, such as occur from large abscesses, from extensive burns, scalds and mechanical injuries. It is called for in cases of gangrene, which are attended with a low pulse; also in all cases of extreme exhaustion and debility, where there is no particular symptom to contraindicate its use. In convalescence from fevers, wine, moderately used, undoubtedly expedites the recovery. It should not, however, be carried to such an extent as to produce vertigo or heaviness. Nursing women derive an increase of milk from the use of vinous liquids, though perhaps porter and ardent spirits are more frequently resorted to in such cases than wine itself. From my own observation I am inclined to believe, that the custom of using vinous and spirituous liquids at an early period of lactation, and increasing them, as is frequently done, during the whole process, is more commonly injurious than useful.

Healthy females, whose living has not been previously luxurious, require no such stimulus. Those of different habit do not always prevent the symptoms of inanition, but, on the contrary, sometimes accelerate them, by a too stimulating diet. One of the consequences, which are apt to ensue from such a course, is the premature return of the catamenia, establishing a double drain on the constitution. In general, nursing mothers should delay the use of vinous liquids, and endeavour to accustom themselves to a milk diet. It is time enough to commence their employment, when it has been ascertained that the mother cannot nurse without them. The desired effect of increasing the milk, and giving temporary support to the strength of the mother, is greater, in proportion to the lateness of the period at which a stimulating course is adopted. I have found one of the best remedies for a debilitating recurrence of the catamenia during lactation, to be the substitution of a milk diet for a spirituous one.

EXHIBITION. In the low delirium of fevers, and other cases of urgent debility, wine should be given in small doses, and frequently repeated, so that the strength shall not sink during the intervals. A table spoonful, or half a fluidounce, may be given every hour, and in urgent cases every half hour, so that from half to a whole bottle may be taken in twenty-four hours; a little arrow root, or some other light nutriment being added with every other dose. The dry and strong wines, such as Madeira and Sherry, are best adapted to such cases.



VINA MEDICATA.

Medicated Wines.

Wine somewhat resembles diluted alcohol in its solvent powers, and has been long used as a menstruum for different medicinal substances. It is subject to the objection, however, that when impregnated with vegetable substances, it is liable to undergo spontaneous changes, which render variable the strength of the

compound. Wines should be prepared in small quantities, that they may be frequently renewed.

VINUM ALOES. *Wine of Aloes.*—This is an effectual cathartic, in the *dose* of one or two fluidounces. It is less heating than the tincture, and is sometimes employed as a stomachic, in the *dose* of a fluidrachm or two.

VINUM ANTIMONII TARTARIZATI. *Wine of tartarized Antimony.*—This is a very popular, but at the same time a very bad preparation of tartarized antimony. As the quality of wine employed by any two apothecaries is scarcely ever the same, the article will always be found of uncertain strength, since all wines deposit a precipitate, and some a much greater one than others. Even Sherry, the sort directed by the British colleges, is not exempt from this objection. When some of the poorer wines are used, nearly the whole of the antimony is precipitated by standing, apparently in the form of an oxide, with various impurities. The American Pharmacopœia directs four grains to the fluidounce of liquid, agreeably to the old London proportions. This wine, when newly prepared, is of double the strength of the present London and Edinburgh preparations. Apothecaries here generally prepare it of this strength, from finding the weaker sort so often complained of for inactivity. On medical grounds, a strong preparation is to be preferred to a weak one, since large quantities of the solvent are injurious in many of the cases for which the article is prescribed.

Wine of tartarized antimony is much used by families as an emetic and expectorant. When good, half a fluidounce is an emetic for an adult in slight cases, and from a half to a whole fluidrachm for infants. It often, however, does harm in pulmonary inflammations, especially when weak, in consequence of large quantities of wine being introduced by frequent repetitions of the dose, before an operation takes place. See *Tartarized antimony*.

VINUM COLCHICI. *Wine of Meadow Saffron.*—The *Vinum colchici* of the American Pharmacopœia is an imitation of the

Eau médicinale of Husson. That nostrum is now stated by Dr. Paris and others to be made from two ounces of sliced colchicum, macerated in four fluidounces of Spanish white wine, and filtered. The proportion of colchicum in this formula is very large, and our druggists inform me that the root nearly absorbs the quantity of wine ordered. It is found, that the wine of colchicum deposits a sediment on standing. Sir Everard Home asserts, that this sediment is the chief cause of the nausea and griping, which sometimes attend the medicine; and that if the clear liquid be taken without the sediment, it is equally efficacious in gout, and free from these inconveniences. The *dose* of the depurated wine is from thirty to seventy minims, to be taken during a paroxysm of gout. Sir E. Home says, sixty minims are the smallest quantity that can be depended on for the removal of the paroxysm, and some constitutions require seventy. The general effect is no greater than slight nausea. Mr. Bampfield has published many cases of gout relieved by twenty or twenty-five minims of a wine made with a pound to the pint. This was taken at night with the addition of a little camphor, lavender, or some other aromatic, and repeated each following night till relief was obtained. Dr. Scudamore prefers the *Vinegar of colchicum* of the London College, which is made with an ounce of the fresh bulb to a pint of vinegar, to which is afterwards added a fluidounce of proof spirit.

VINUM FERRI. *Wine of Iron.*—This is less unpalatable than many of the other chalybeates, with which it agrees in its properties. *Dose*, from one to four fluidrachms.

VINUM GENTIANÆ COMPOSITUM. *Compound Wine of Gentian.*—A grateful, warm, tonic medicine; but liable to spoil by keeping. *Dose*, half a fluidounce.

VINUM IPECACUANHÆ. *Wine of Ipecacuanha.*—Wine is found to be a sufficient solvent for all the active parts of ipecacuanha. This preparation furnishes a convenient liquid emetic, more mild and more uniform in its operation than the antimonial wine. To produce vomiting, a table spoonful, or half a fluidounce, may be given once in twenty minutes, till it operates. To a

child a year old, from half to a whole fluidrachm may be given, and repeated, if necessary, at the same intervals. From ten to forty minims act as a diaphoretic. See *Wine of tartarized antimony*.

VINUM OPII. *Wine of Opium*.—The preparation in the American Pharmacopœia is essentially the same with that employed by Sydenham, under the name of *Laudanum*. The quantity of opium is twice that employed by the London and Edinburgh colleges in their *Vinum opii*, at the present day. *Sydenham's Laudanum*, like the *Black drop*, is probably made with a greater quantity of opium than the menstruum can dissolve. The *dose* of this preparation may be ten or fifteen minims.

VINUM RHEI. *Wine of Rhubarb*.—This wine is purgative, like the tincture; but is liable to decomposition. *Dose*, from a half to a whole fluidounce.

VINUM TABACI. *Wine of Tobacco*.—Employed as a diuretic, in *doses* of from thirty to eighty minims, three times a day, beginning with the smallest quantity, and increasing till nausea occurs.

VINUM VERATRI ALBI. *Wine of White Hellebore*.—At one period, this preparation was supposed by Moore and others, to be the basis of the *Eau médicinale*. It has been employed with some advantage in gout and rheumatism, in the *dose* of about a fluidrachm.

VIOLA.

Violet.

The violets are generally mucilaginous plants, and employed as demulcents in catarrh and strangury. Some of them are allied to ipecacuanha, and contain *emetin* in their substance. The *Viola pedata*, a native species retained in the Pharmacopœia, is considered a useful expectorant and lubricating medicine in pulmonary complaints, and is given in syrup or decoction.

WINTERA.*Winter's Bark.*

This bark comes from the Straits of Magellan in large pieces, of a somewhat cinnamon hue. It is powerfully aromatic and pungent, and resembles in its medicinal properties cascarilla, canella, sassafras, &c. It is not extensively used in this country at the present day. Canella is sometimes sold for it.

XANTHORHIZA.*Yellow Root.*

This is a small shrub, growing in the southern states. The root affords a yellow colouring matter. Its taste is intensely bitter, with scarcely any other flavour. It is represented, by those who have used it, to be a valuable stomachic and tonic, performing the office of other vegetable bitters of its class, and remaining easily and without inconvenience on the stomach. One or two scruples may be taken in powder for a *dose*; or a decoction may be used, which extracts the bitterness of the root.

XANTHOXYLUM.*Prickly Ash.*

ORIGIN. The *Xanthoxylum fraxineum* is a prickly shrub, found in the northern, middle and western parts of the United States, in woods, and moist, shady declivities.

QUALITIES. The leaves and rind of the fruit resemble those of the lemon in their smell and taste, and possess a similar volatile oil. The bark possesses a separate acrid principle, which is communicated to water and alcohol, but does not come over in

distillation. The acrimony is not perceived when the bark or liquid is first taken into the mouth, but gradually develops itself by a burning sensation on the tongue and fauces.

USES. Prickly ash has acquired much reputation as a remedy in chronic rheumatism. In that disease it has an operation analogous to that of mezereon and guaiacum, which it resembles in its sensible properties. Taken in full doses, it produces a sense of heat in the stomach, a tendency to perspiration, and a relief of rheumatic pains.

EXHIBITION. Twenty grains may be taken three times a day in powder; or an ounce may be boiled in a quart of water, and the decoction taken during twenty-four hours.

ZINCUM.

Zinc.

Zinc is a semiductile metal, found in different combinations in various parts of the world, but usually procured from the ore called *blende*, which is a sulphuret of zinc. It has a peculiar taste, and emits a perceptible smell when rubbed. Its colour is blueish-white; its fracture shining and lamellated, staining the fingers black when rubbed upon them. Its specific gravity is about 7. In a temperature between 210° and 300° it is malleable and ductile, and can be drawn into wire. At 680° it melts, and if air be present is rapidly oxidized. At the temperature of ignition it burns with a white flame, and is volatilized in the form of a white oxide.

ZINCI OXIDUM.

Oxide of Zinc. Formerly Flowers of Zinc.

This oxide, which is volatilized by the combustion of zinc, is white, insipid, insoluble in water and alcohol. It is sometimes

given in chorea and hooping cough as a tonic and antispasmodic, in *doses* of from one to five grains twice a day. Externally used, it is astringent and desiccative.

ZINCI OXIDUM IMPURUM.

Impure Oxide of Zinc. Called Tutty.

Tutty is supposed to be an artificial compound, of the sublimed oxide of zinc, that collects in the chimnies of furnaces, mixed with clay and water and baked. It is insipid, moderately heavy, brownish outside and yellowish within. It is used to form astringent ointments, after being reduced to a very fine powder.

ZINCI CARBONAS IMPURUS.

Impure Carbonate of Zinc. Called Calamine.

Calamine is an ore of zinc, and is found in greyish or reddish-yellow masses, breaking with an irregular, earthy fracture, and without lustre. When *prepared* in the form of an impalpable powder, as directed by the Pharmacopœia, it forms a useful absorbent and astringent application, when dusted on excoriated and oozing surfaces. It is the basis of an officinal cerate.

ZINCI ACETAS.

Acetate of Zinc.

In the process directed by the Pharmacopœia, a double decomposition takes place in the salts employed, and two new compounds are formed, of which the sulphate of lead, being insoluble

in water, is precipitated, while the acetate of zinc remains dissolved, and is afterwards obtained by evaporation. It crystallizes in rhomboidal or hexagonal plates, soluble in water, but not altered by exposure to the air, and burning at the temperature of ignition with a blue flame. This salt is astringent, and is applied by lotion and injection in cases of ophthalmia and gonorrhœa. It is not necessary, however, to obtain the dry salt in order to form a solution, since that liquid previously exists at one stage of its preparation. See *Collyria*.

ZINCI SULPHAS.

Sulphate of Zinc. Called White Vitriol.

ORIGIN. Sulphate of zinc is directed by the British colleges to be formed immediately from its elements, by dissolving zinc in sulphuric acid diluted with water. But most of the white vitriol of commerce is prepared from *blende*, or sulphuret of zinc, by exposing that ore, after roasting, to the air and moisture. The metal becomes oxidized and the sulphur acidified, and by mutual action a sulphate of zinc is formed. This is separated from the residue by lixiviation and crystallization. It should be afterwards purified by another solution, and by slow evaporation in a vessel containing a portion of granulated zinc.

QUALITIES. It crystallizes in transparent, flattish, tetrahedral prisms, terminated by quadrangular pyramids; but in commerce it usually occurs in amorphous, granular masses. Its taste is styptic and metallic. It is *soluble* in two and a half times its weight of cold water, and in less than its weight of boiling water. It contains one proportional of oxide of zinc and one of sulphuric acid. Its crystals have seven proportionals of water.

USES. In small doses this salt is tonic and astringent; in large ones emetic. It is peculiarly useful in dyspepsia, in small quantities, combined with vegetable tonics. It has been employed with advantage in various debilitating discharges, and in nervous and

spasmodic diseases, particularly hooping cough. In a large dose, it is one of the most prompt emetics which we possess; and is commonly resorted to in cases which require an immediate evacuation of the contents of the stomach, such as those in which poisons have been swallowed. Dissolved in water, it forms one of the most efficacious collyria in chronic ophthalmia, and is likewise highly useful as a gargle in ulcerated sore throat and aphthæ, and as an injection in leucorrhœa and gleet. A saturated solution, used as a wash, removes slight cases of psora and some other eruptions.

EXHIBITION. As a tonic from one to two grains, and as an emetic from ten to thirty grains, form a *dose*, to be dissolved in water. When vomiting is urgently required, the dose may be repeated at intervals of five minutes. Alkalies, earths and hydro-sulphurets decompose this medicine, and are incompatible with it. See *Mixture*; also *Collyrium* of sulphate of zinc.

ZINGIBER.

Ginger.

Ginger is a fleshy, creeping root, brought from the East Indies. When good, it is sound, firm, and free from worm holes. It has a pungent, aromatic taste and smell. The pungency resides in a resino-extractive matter, and the aroma in a volatile oil. But the principal bulk of the root is composed of *fæcula*. Water, alcohol and ether extract its virtues; the two last by *dissolving*, and the first by suspending its active constituents. Ginger is more known in domestic economy than in medicine. It is, however, a good sialagogue when topically applied; also an effectual rubefacient. Internally, in *doses* of ten or twenty grains, it is of service in flatulent colic and cramp of the stomach.

TABLE OF SYNONYMES.

THIS Table presents in the same line the synonymous names of the *American*, *Edinburgh* and *London Pharmacopœias*, together with various others. As the *Edinburgh nomenclature*, derived from their *Pharmacopœia* of 1804, has been most frequently reprinted in this country, that nomenclature is here placed in the first column alphabetically, for more convenient reference. A few of these names, which have since been altered by the *Edinburgh College*, correspond more nearly to the *American*. It will be observed, that the names entered as synonymous in this table, are not always exactly such. They are, however, mostly calculated as substitutes for each other, and may be so employed in practice.

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Acetis plumbi	Plumbi acetæ	Plumbi superacetæ	Saccharum saturui
Acetis potassæ	Potassæ acetæ	Potassæ acetæ	Sal diureticus
Acidum acetosum	Acetum	Acetum	Acidum aceticum impurum
Acidum acetosum distillatum	Acetum distillatum	Acidum aceticum	Flores benzoini, seu benzoë
Acidum benzoicum	Acidum benzoicum	Acidum benzoicum	Acidum limonum
Acidum citricum	Acidum citricum	Acidum citricum	Spiritus salis
Acidum muriaticum	Acidum muriaticum	Acidum muriaticum	Aqua fortis
Acidum nitricum	Acidum nitricum	Acidum nitricum	Oleum vitrioli
Acidum sulphuricum	Acidum sulphuricum	Acidum sulphuricum	Elixir vitrioli aromaticum
Acidum sulphuricum aromaticum	Tinctura acidi sulphurici		
Acipenser huso, &c.	Ichthyocolla		Colla piscium
Aconitum Napellus; folium	Aconitum	Aconiti folia	Aconitum neomontanum

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Acorus calamus ; radix Æther sulphuricus Alcohol Alcohol dilutum Alcohol ammoniatum	Calamus Æther sulphuricus Alcohol Alcohol dilutum Alcohol ammoniatum	Calami radix Æther sulphuricus Spiritus rectificatus Spiritus tenuior Spiritus ammoniæ	Acorus verus Naphtha vitrioli Spiritus vini <i>Proof spirit</i> Spiritus salis ammoniaci dulcis
Allium sativum Aloe perfoliata ; gummi resina Ammoniaretum cupri	Allium Aloe Cupri ammoniaretum	Allii radix Aloes spicata extractum Cuprum ammoniatum	
Amomum repens ; semen	Cardamomum	Cardamomi semina	{ Amomum cardamomum. Dublin
Amomum zingiber ; radix siccata	Zingiber	Zingiberis radix	{ Elettaria cardamomum Zingiber officinale
Amygdalus communis ; nucleus	Amygdala	Amygdalæ dulces, amaræ	
Anethum fœniculum Anthemis nobilis Apium petroselinum ; radix Aqua acetitis ammoniæ Aqua supercarbonatis potassæ Aqua supercarbonatis sodæ Arbutus uva ursi ; folium Aristolochia serpentaria ; radix Arnica montana	Fœniculum Anthemis Petroselinum Ammoniæ acetas liquidus Aqua potassæ supercarbonata Aqua sodæ supercarbonata Uva ursi Serpentaria Arnica Tragacantha	Fœniculi semina Anthemidis flores Liquor ammoniæ acetatis Uva ursi folia Serpentariæ radix Tragacantha	Chamamælum Spiritus Mindereri
Astragalus tragacantha ; gummi			Astragalus verus. Lond.

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Atropa belladonna ; folia	Belladonna	Belladonnæ folia	Solanum lethale
Avena sativa ; semen	Avenæ farina	Avenæ semina	Borax
Boræ sodæ	Sodæ subboras	Sodæ subboras	Costus corticosus
Bubon galbanum ; gummi-res.	Galbanum	Galbani gummi resina	Piper indicum
Canella alba ; cortex	Canella	Canellæ cortex	Sal volatile
Capsicum annuum ; fructus	Capsicum	Capsici bacca	
Carbonas ammoniæ	Ammoniæ subcarbonas	Ammoniæ subcarbonas	
Carbonas calcis ; a, <i>creta alba</i>	Calcis carbonas, a, <i>mollis</i>	Creta	
Carbonas calcis ; b, <i>marmor album</i>	Calcis carbonas, b, <i>durus</i>	Lapis calcareus	
Carbonas ferri	Ferri carbonas	Ferri subcarbonas	Rubigo
Carbonas magnesiæ	Magnesiæ carbonas	Magnesiæ carbonas	Magnesia alba
Carbonas potassæ impurus	Potassæ subcarbonas impurus	Potassa impura	Cineres clavellati
Carbonas potassæ	Potassæ subcarbonas	Potassæ subcarbonas	Sal absinthii
Carbonas potassæ purissimus	Potassæ subcarbonas purissimus		Sal tartari ; Kali e tartaro
Carbonas sodæ	Sodæ subcarbonas	Sodæ subcarbonas	Sal sodæ
Carbonas zinci impurus	Zinci carbonas impurus	Calamina	Cadmia fossilis
Carum carui ; semen	Carum	Carui semina	Carvi
Caryophyllus aromaticus ; floris germen	Caryophylli	Caryophylli	Eugenia caryophyllata. Dub. Lond.
Cassia fistula ; fructus	Cassia fistula	Cassiæ pulpa	Diacasia
Cassia senna ; folium	Senna	Sennæ folia	
Castor fiber ; castoreum	Castoreum	Castoreum	
Cervus elaphus ; cornu	Cornu cervi	Cornua	
Cinchona officinalis ; a, <i>communis</i>	Cinchona pallida	Cinchonæ lancifoliæ cortex	Cortex pallidus. Cortex Peruvianus

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
<i>Cinchona officinalis</i> ; <i>b</i> , <i>flavus</i> <i>Cinchona officinalis</i> ; <i>c</i> , <i>ruber</i> <i>Citrus aurantium</i> ; fructus cor- tex	<i>Cinchona flava</i> <i>Cinchona rubra</i> <i>Aurantii cortex</i>	<i>Cinchonæ cordifoliæ cortex</i> <i>Cinchonæ oblongifoliæ cortex</i> <i>Aurantii cortex</i>	<i>Cortex flavus</i> <i>Cortex ruber</i> <i>Mala aurantia</i>
<i>Citrus medica</i> ; fructus <i>Cochlearia armoracia</i> ; radix <i>Colchicum autumnale</i> ; radix <i>Colomba</i> ; radix <i>Conium maculatum</i> ; folium <i>Conservæ</i> <i>Convulvulus scammonia</i> ; gummi resina <i>Convulvulus jalapa</i> ; radix <i>Copaifera officinalis</i> ; resina liquida <i>Coriandrum sativum</i> ; semen <i>Crocus sativus</i> ; floris stigma <i>Croton eleutheria</i> ; cortex	<i>Limon</i> <i>Armoracia</i> <i>Colchicum</i> <i>Colomba</i> <i>Conium</i> <i>Confectiones</i> <i>Scammonium</i> <i>Jalapa</i> <i>Copaiba</i> <i>Coriandrum</i> <i>Crocus</i> <i>Cascarilla</i>	<i>Limones</i> <i>Armoraciæ radix</i> <i>Colchici radix</i> <i>Calumbæ radix</i> <i>Conii folia</i> <i>Confectiones</i> <i>Scammonæ gummi resini</i> <i>Jalapæ radix</i> <i>Copaiba</i> <i>Coriandri semina</i> <i>Croci stigmata</i> <i>Cascarillæ cortex</i>	<i>Cicuta. Ray</i> <i>Diagrydium</i> <i>Mechoacana nigra</i> <i>Balsamum Brasilense</i> <i>Crocus Anglicus</i> <i>Croton cascarilla. Dub. Lond.</i> <i>Clutia eleutheria Linn.</i> <i>Coloquintida</i> <i>Laureola</i> ; <i>Cocognidium</i> <i>Pomum spinosum</i>
<i>Cucumis colocynthis</i> ; fructus <i>Daphne mezereum</i> ; radicis cortex <i>Datura stramonium</i> ; herba <i>Daucus carota</i> ; semen <i>Digitalis purpurea</i> ; folium <i>Dolichos pruriens</i> ; leguminis pubes rigida	<i>Colocynthis</i> <i>Mezereon</i> <i>Stramonium</i> <i>Carota</i> <i>Digitalis</i> <i>Dolichos</i>	<i>Colocynthis pulpa</i> <i>Mezerei cortex</i> <i>Dauci semina</i> <i>Digitalis folia</i> <i>Dolichi pubes</i>	

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Dorstenia contrajerva; radix	Contrajerva	Contrajervæ radix	
Electuaria	Confectiones	Confectiones	
Emplastrum meloes vesicatorii	Ceratum canthariorum	Emplastrum lyttæ	Emplastrum vesicatorium
Emplastrum oxidi plumbi semivitrei	Emplastrum plumbi	Emplastrum plumbi	Emplastrum lithargyri
Emplastrum resinosum	Emplastrum resinosum	Emplastrum resinæ	Emplastrum adhæsivum
Emulstones	Misturæ	Misturæ	
Ferula assafœtida; gummi resinsina	Assafœtida	Assafœtidæ gummi resina	
Ficus carica; fructus	Ficus	Caricæ fructus	
Fraxinus ornus; Manna	Manna	Manna	Manna calabrina
Gambogia; gummi resina	Gambogia	Gambogia	Stalagmitis cambogioides
Gentiana lutea; radix	Gentiana	Gentianæ radix	Gentiana rubra
Glycyrrhiza glabra; radix	Glycyrrhizæ radix	Glycyrrhizæ radix	Radix liquiritiæ
Glycyrrhiza glabra; extractum	Glycyrrhizæ extractum	Extractum glycyrrhizæ	Succus liquiritiæ depuratus
Guaiacum officinale; lignum	Guaiaci lignum	Guaiaci lignum	Lignum vitæ
Guaiacum officinale; resina	Guaiaci resina	Guaiaci resina	Lignum Campechense
Hæmatoxylum campechi- num; lignum	Hæmatoxylon	Hæmatoxylî lignum	
Helleborus niger; radix	Helleborus niger	Hellebori nigri radix	Melampodium
Helleborus foetidus	Helleborus foetidus		
Hordeum distichon; semen	Hordeum	Hordei semina	
Humulus lupulus	Humulus	Humuli strobili	
Hydrargyrus	Hydrargyrum	Hydrargyrum	Argentum vivum; Mercurius
Hyoscianus niger; herba; semen	Hyoscyamus	Hyosciami folia et semina	

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Ipecacuanha ; radix	Ipecacuanha	Ipecacuanhæ radix	Callicocca, or Cephaelis ipe- cacuanha
Juniperus communis ; bacca	Juniperus	Juniperi baccæ	
Juniperus sabina ; folium	Sabina	Sabinæ folia	
Lavandula spica ; spica flo- rens	Lavandula	Lavendulæ flores	
Laurus camphora ; camphora	Camphora	Camphora	
Laurus cinnamomum ; cortex	Cinnamomum	Cinnamomi cortex	
Laurus sassafras ; radix	Sassafras	Sassafras radix	Canella
<i>Lichen Islandicus</i>	Lichen	Lichen	Muscus Islandicus
Linum usitatissimum ; semen	Lini semina	Lini usitatissimi semina	
Melaleuca leucadendron ; ole- um volatile	Cajuputi oleum	Cajuputi oleum	Melaleuca cajuputi. Lond.
Meloe vesicatorius	Cantharides	Lytta	Lytta vesicatoria. Lond.
Menyanthes trifoliata ; folium	Menyanthes	Menyanthes	Trifolium palustre
Mimosa catechu ; ligni ex- tractum	Catechu	Catechu extractum	Acacia catechu. L. Terra Japonica
Mimosa nilotica ; gummi	Acaciæ gummi	Acaciæ gummi	Acacia vera. L. Gummi Sen- egal
Momordica elaterium ; succus spissatus	Elaterium	Extractum elaterii	
Moschus moschiferus ; mos- chus	Moschus	Moschus	
Murias ammoniæ	Ammoniæ murias	Ammoniæ murias	Sal ammoniacum
Murias antimonii	Antimonii murias	Antimonii murias	Butyrum antimonii
Murias barytæ	Barytæ murias		
Murias hydrargyri	Hydrargyri oxymurias	Hydrargyri oxymurias	Sublimatum corrosivum
Murias sodæ	Sodæ murias	Sodæ murias,	Sal commune, Sal marium

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
<i>Myristica moschata</i> ; fructus nucleus	<i>Myristica</i>	<i>Myristicæ nuclei</i>	<i>Balsamum Indicum nigrum</i>
<i>Myroxylon Peruiferum</i> ; bal- samum	<i>Myroxylon</i>	<i>Balsamum Peruvianum</i>	<i>Piper Jamaicaense</i>
<i>Myrtus pimenta</i> ; fructus	<i>Pimenta</i>	<i>Pimentæ baccæ</i>	<i>Nitrum</i>
<i>Nicotiana tabacum</i> ; folium	<i>Tabacum</i>	<i>Tabaci folia</i>	<i>Causticum Junare</i>
<i>Nitras potassæ</i>	<i>Potassæ nitras</i>	<i>Potassæ nitras</i>	
<i>Nitras argenti</i>	<i>Argenti nitras</i>	<i>Argenti nitras</i>	
<i>Olea Europæa</i> ; fructus ; oleum fixum	<i>Olivæ oleum</i>	<i>Olivæ oleum</i>	
<i>Origanum vulgare</i>	<i>Origanum</i>	<i>Origanum</i>	
<i>Ovis aries</i> ; adeps	<i>Sevum</i>	<i>Sevum</i>	
<i>Oxidum antimonii cum phos- phate calcis</i>	<i>Pulvis antimonialis</i>	<i>Pulvis antimonialis</i>	<i>Pulvis Jacobi</i>
<i>Oxidum antimonii cum sul- phure vitrificatum</i>	<i>Antimonii oxidum vitrificatum</i>	<i>Vitrum antimonii</i>	<i>Vitrum antimonii ceratum</i>
<i>Oxidum antimonii vitrificatum cum cera</i>	<i>Antimonii oxidum vitrificatum cum cera</i>	<i>Vitrum antimonii ceratum</i>	
<i>Oxidum antimonii cum sul- phure per nitratem potassæ</i>	<i>Antimonii oxidum sulphuratum</i>	<i>Crocus antimonii</i>	
<i>Oxidum arsenici</i>	<i>Acidum arseniosum</i>	<i>Arsenici oxydum</i>	<i>Arsenicum album</i>
<i>Oxidum ferri rubrum</i>	<i>Ferri oxidum rubrum</i>	<i>Hydrargyri oxydum cinereum</i>	<i>Colcothar vitrioli</i>
<i>Oxidum hydrargyri cinereum</i>	<i>Hydrargyri oxidum cinereum</i>	<i>Hydrargyri nitrico-oxydum</i>	<i>Pulvis hydrargyri cinereus</i>
<i>Oxidum hydrargyri rubrum per acidum nitricum</i>	<i>Hydrargyri nitrico-oxidum</i>		<i>Mercurius præcipitatus ruber</i>
<i>Oxidum plumbi album</i>	<i>Plumbi subcarbonas</i>	<i>Plumbi subcarbonas</i>	<i>Cerussa</i>
<i>Oxidum plumbi semivitreum</i>	<i>Plumbi oxidum semivitreum</i>	<i>Plumbi oxydum semivitreum</i>	<i>Lithargyrum</i>

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Oxidum zinci impurum	Zinci oxidum impurum		Tutia
Papaver somniferum; opium	Opium	Opium	
Phosphas sodæ	Sodæ phosphas		
Physeter macrocephalus; spermaceti	Spermaceti	Cetaceum	
Pimpinella anisum; semen	Anisum	Anisi semina	
Pinus abies; resina sponte concreta	Pix abietis	Pix arida	Pix Burgundica
Pinus balsamea; resina liquida	Terebinthina Canadensis	Terebinthina Canadensis	
Pinus latrix; oleum volatile	Terebinthina oleum	Terebinthina oleum	
Pinus latrix; resina	Resina pini	Resina flava	Colophonium
Piper nigrum; fructus	Piper	Piperis nigri baccæ	
Polygala senega; radix	Senega	Senegæ radix	
Polypodium filix mas; radix	Polypodium	Filicis radix	Aspidium filix mas. Lond.
Prunus domestica; fructus	Pruna	Pruna	
Pterocarpus santalinus; lignum	Santalum	Pterocarpi lignum	
Punica granatum; fructus cortex	Granatum	Granati cortex	
Quassia excelsa; lignum	Quassia	Quassia lignum	
Quassia simaruba; cortex	Simarouba	Simaroubæ cortex	
Rhamnus catharticus; baccæ succus	Rhamnus	Rhamni baccæ	Spina cervina
Rheum palmatum; radix	Rheum	Rhei radix	Rhabarbarum
Rhus toxicodendron; folium	Toxicodendron	Toxicodendri folia	Toxicodendron
Ricinus communis; oleum fixum	Ricini oleum	Ricini oleum	Palma Christi. Cataputia major

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Rosmarinus officinalis ; sum- mitas florens	Rosmarinus	Rosmarini cacumina	
Rubia tinctorum ; radix	Rubia	Rubiæ radix	
Saccharum officinarum	Saccharum	Saccharum	Sapo ex olivæ oleo et soda confectus
Sapo albus Hispanus	Sapo	Sapo durus	Squilla
Scilla maritima ; radix	Scilla	Scillæ radix	Solanum scandens
Smilax sarsaparilla ; radix	Sarsaparilla	Sarsaparillæ radix	Aqua calcis muriatis
<i>Solanum dulcamara</i>	Dulcamara	Dulcamaræ caulis	
Solutio muriatis calcis	Liquor calcis muriatis	Liquor calcis muriatis	
Spigelia Marilandica ; radix	Spigelia	Spigellæ radix	
Spongia officinalis	Spongia	Spongia	Asa dulcis
Styrax benzoin ; Balsamum	Benzoinum	Benzoinum	Calomelas
Submuriæ hydrargyri	Hydrargyri submuriæ	Hydrargyri submuriæ	Turpethum minerale
Subsulphas hydrargyri flavus	Hydrargyri subsulphas flavus		Viride æris
Subacetis cupri	Cupri subacetis	Ærugo	
Succi spissati	Extracta	Extracta	Supersulphas argillæ alcalisatæ
Sulphas aluminæ	Alumen	Alumen	Terra ponderosa
Sulphas barytæ	Barytæ sulphas		Vitriolum cæruleum
Sulphas cupri	Cupri sulphas	Cupri sulphas	Vitriolum viride. Sal martis
Sulphas ferri	Ferri sulphas	Ferri sulphas	Sal catharticum amarum
Sulphas magnesiæ	Magnesiæ sulphas	Magnesiæ sulphas	Tartarum vitriolatum. Sal de duobus
Sulphas potassæ	Potassæ sulphas	Potassæ sulphas	Sal Glauberi
Sulphas sodæ	Sodæ sulphas	Sodæ sulphas	Sal vitrioli
Sulphas zinci	Zinci sulphas	Zinci sulphas	Flores sulphuris loti
Sulphur sublimatum lotum	Sulphur	Sulphur lotum	

EDINBURGH.	AMERICAN.	LONDON.	MISCELLANEOUS.
Sulphuretum antimonii	Antimonii sulphuretum	Antimonii sulphuretum	Stibium
Sulphuretum hydrargyri nigrum	Hydrargyri sulphuretum nigrum	Hydrargyri sulphuretum nigrum	Æthiops mineralis
Sulphuretum hydrargyri rubrum	Hydrargyri sulphuretum rubrum	Hydrargyri sulphuretum rubrum	Cinnabaris factitia
Sulphuretum potassæ	Potassæ sulphuretum	Potassæ sulphuretum	Hepar sulphuris
Supertartaris potassæ	Potassæ supertartaras	Potassæ supertartaras	Crystalli tartari
Sus scrofa; adeps	Adeps	Adeps	Axungia
Tamarindus indica; fructus conditus	Tamarindus	Tamarindi pulpa	
Tanacetum vulgare folium, flos	Tanacetum		
Tartris potassæ	Potassæ tartras	Potassæ tartras	Tartarum solubile
Tartris potassæ et sodæ	Potassæ et sodæ tartras	Soda tartarizata	Sal rupellensis
Tinctura muriatis ferri	Tinctura ferri muriatis	Tinctura ferri muriatis	
Tinctura opii camphorata	Tinctura camphoræ opiata	Tinctura camphoræ composita	Elixir paregoricum, s. asthma-ticum
Toluifera balsamum; balsamum	Tolutanum	Balsamum Tolutanum	Balsamum de Carthagera
Tartris antimonii	Antimonium tartarizatum	Antimonium tartarizatum	Tartarus emeticus
Unguentum resinosum	Ceratum resinosum	Ceratum resinæ	Unguentum Basilicon
Valeriana officinalis; radix	Valeriana	Valerianæ radix	
Vitis vinifera; fructus siccatus	Uvæ	Uvæ passæ	
Wintera aromatica	Wintera		

NOTE.—The names in *Italics* are from the *Edinburgh Dispensatory*.

ENGLISH INDEX.

NOTE.—The subjects of this work being arranged in the alphabetical order of their Latin names, a *Latin Index* is considered unnecessary.

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Corrigenda of the American Pharmacopœia.

THE following list of corrigenda to the U. S. Pharmacopœia was published sometime after that work. It contains those corrections which were considered necessary by the Publishing Committee, to remedy some accidental omissions and discrepancies, and to conform the work more perfectly to the views of the General Convention. As the present volume is founded on the American Pharmacopœia, thus corrected, it has been thought useful to reprint the list in this place.

Page 32, line 9. *For* CASSA, *read* CASSIA.

— 34. *Insert* CUNILA Cunila pulegioides.
Pennyroyal. W. I. 122.

— 55, 56. *Strike out the articles* ORIGANUM *and* SAMBUCUS, *repeated here by mistake.*

— 64. *Under* ACIDUM SULPHURICUM DILUTUM, *for* septem, *read* decem; *and in the English*, p. 65, *for* seven, *read* ten.

— 68, line 4. *For* uncias, *read* fluiduncias; *and in the English*, p. 69, *for* one pint, *read* twelve fluidounces.

At the end of this formula add,

Agitando misce hujus ætheris fluiduncias quatuordecim cum potassæ uncia dimidia in aquæ distillatæ unciis binis soluta; dein calore ad gradum CXX, ex retorta ampla in excipulum frigidum distillent fluidunciæ duodecim.

And in the English,

Mix by shaking fourteen fluidounces of this ether with half an ounce of potass dissolved in two fluidounces of water. Then, with a heat of 120°, distil twelve fluidounces from a large retort into a cold receiver.

— 70. *Under* ALCOHOL DILUTUM, *in both lines*, *for* octantem unum, *read* libram unam; *and in the English*, *in both lines*, *for* pint, *read* pound.

— 74, line 5. *For* AMMONIÆ CARBONAS, *read* AMMONIÆ SUBCARBONAS; *and in the English*, p. 75, *for* CARBONATE OF AMMONIA, *read* SUBCARBONATE OF AMMONIA. *Make a corresponding correction wherever this name occurs.*

— 78, line 1. *For* ANTIMONII OXIDUM, *read* ANTIMONII OXIDUM SULPHURATUM; *and in the English*, *for* OXIDE, *read* SULPHURETTED OXIDE.

On the same page insert the following formula :

ANTIMONII OXIDUM.

R. Antimonii in pulverem triti uncias octo ;

Potassæ nitratis in pulverem triti libras duas.

Misce et gradatim in crucibulum igne rubens immitte. Ure materiam albam circiter horam dimidiam, et frige factam in pulverem tere ; dein aqua distillata lava.

And in the English,

OXIDE OF ANTIMONY.

FORMERLY DIAPHORETIC ANTIMONY.

Take of Antimony, in powder, eight ounces ;

Nitrate of potass, in powder, two pounds.

Mix and throw them gradually into a red hot crucible. Burn the white matter for about half an hour, and, when cold, powder it ; after which wash it with distilled water.

NOTE. *The above is the article directed p. 176 and p. 173.*

- Page 82. *After each of the names, AQUA MAGNESIÆ, AQUA POTASSÆ, and AQUA SODÆ, insert SUPERCARBONATA; and before the English names of the same articles, p. 83, insert SUPERCARBONATED.*
- 84, line 5. *For octantes decem, read congiuntum unum; and in the English, p. 85, for ten pints, read one gallon.*
- 86. *In the name of the second article, for ARSENIATIS, read ARSEENITIS.*
- 93, line 4. *For boiling water, read boiling distilled water.*
- 104, article 4. *For SCAMMONIÆ, read SCAMMONII, et passim.*
- 106, line 7. *After Glycyrrhizæ, insert radicis; also on pages 112, 114, 150, 173, 180, 212, 240.*
- 107, lines 7 and 8. *Transpose the words three and four.*
- Line 8. *After Liquorice, insert root; also on pages 113, 115, 151, 179, 181, 213, 241.*
- 108, 1st and 3d articles. *Transpose LIQUOR to the beginning of the name.*
- Line 7. *For PRÆPARATUM, read PRÆPARATUS.*
- 110, line 8. *Strike out cum scilicet; and in the English, p. 111, strike out and a half.*
- 114, line 5 from bottom. *After Guaiaci read ligni. Ditto p. 212, l. 12. In English insert wood.*
- 116, lines 16 and 17. *After VERATRI add ALBI.*
- 124, line 14. *For madeñant, read madeñactis.*
- 165, line 16. *Before antimony insert tartarized.*
- 166, line 3. *Between cum and aqua insert saccharo et.*
- 167, line 3. *For water, read sugar and water.*
- 183, line 5. *For carbonatis, read subcarbonatis purissimi; and in the English, p. 189, for carbonate, read pure subcarbonate. Ditto p. 194, 195, l. 2.*
- Line 6 from bottom. *For carbonatis, read subcarbonatis; and in the English, p. 189, for carbonate, read subcarbonate. Ditto p. 74, 75, l. 13, 12.*
- 190, line 10. *For CARBONAS, read SUBCARBONAS PURISSIMUS; and in the English, p. 191, for CARBONATE, read PURE SUBCARBONATE.*
- 192, 193. *Erase the formulæ for preparing POTASSÆ SULPHAS (SULPHATE OF POTASS) and transfer the article to the Materia Medica List.*
- 194, line 1. *For SUPERCARBONAS, read CARBONAS; and in English, for SUPERCARBONATE, read CARBONATE.*
- Line 13. *For quindecim, read duodecim; and in English, p. 195, for fifteen, read twelve.*
- 194, line 20. *Remove TARTRAS to the end of the name.*
- 203, line 17. *For twenty, read twenty-four; and l. 22, for twenty-four hours, read two days.*
- 220, line 3 from bottom. *Strike out diluti.*
- 223, line 6. *For Liquorice, read Extract of liquorice.*
- 228, for the names of the two first formulæ, read TINCTURA FERRI ACETATIS, and TINCTURA FERRI MURIATIS.
- 240. *Under TINCTURA SENNÆ AROMATICA, insert Rhei contusi unciam unam; and in the English, p. 241, l. 3, insert Rhubarb bruised, one ounce.*
- 246, lines 10 and 12. *For nitrosi, read nitrici; and, in 12th line, for sex, read quatuor; and in the English, p. 247, for nitrous, read nitric, and for six, read four.*
- 248, bottom line of note. *Strike out seu terebinthinæ; and in the English, p. 249, strike out or of turpentine.*
- 253, line 10. *For Mix, read Melt.*

NOTE. When the word *parts* is used in the Pharmacopœia, parts by weight are to be taken.



